THE SIGHT-SAVING REVIEW

Volume XXIX Number 2

Summer, 1959

Table of Contents

PAGE

1959 Annual Conference Stresses Sight-Saving Goals
Florence Nelson 70

Leslie Dana Medal Awarded to Robert F. Irwin, Jr. 74

Goals and Problems in Saving Sight
David E. Price, M.D. 76

A Device for Testing Visual Acuity in Infants
John J. Gorman, M.D., David G. Cogan, M.D., and
Sydney S. Gellis, M.D. 80

Operation of the Illinois Eye Bank
Alina Drake 85

Industrial Vision Conservation—The Physician's Viewpoint
Ralph W. Ryan, M.D. 88

Volunteer Vision Screening in South Carolina
Mary Louise Free, R.N. 92

APHA Discussions of Eye Problems 96

Award to Eugene M. Blake, M.D. 97

One Big Health Agency? 98

Eyes in the Animal World 99

Notes and Comment 100

Around the World 106

Current Articles 109

Books and Pamphlets 123

ADVERTISEMENTS

American Optical Company 65

Excerpta Medica 68

Good-Lite Mfg. Co. 66

Jenkel-Davidson Optical Company 67

Copyright 1959
National Society for the Prevention of Blindness, Inc.
Title Registered United States Patent Office

1959 Annual Conference Stresses Sight-Saving Goals

FLORENCE NELSON

Held in New York February 25–27, it marked the National Society's 51st year of prevention of blindness effort.

"PREVENTION — Keeping the Goal in Sight" was the theme of the 1959 Annual Conference of the National Society for the Prevention of Blindness, held at the Statler-Hilton in New York, February 25–27. More than 600 physicians, public health workers, nurses, educators, volunteers and others who have a professional interest in sight conservation met to discuss mutual problems, exchange information and learn of recent scientific advances in the field of eye health.

The broad subjects on which the three-day program was based included: community activities in prevention of blindness; educational services for partially seeing children; industrial vision conservation; scientific advances in treatment of eye disease; and building better public relations in promoting programs on the local level.

First Session

Ira V. Hiscock, Sc.D., National Society president, welcomed the delegates on the opening day of the conference, and introduced as the co-chairmen of the first session Roscoe P. Kandle, M.D., deputy commissioner, New York City Health Department, and Bosse B. Randle, R.N., director, division of public health nursing, Nassau County Department of Health, Garden City, N. Y.

Under the general heading of community activities four subjects of current interest were presented: Dr. Murray F. McCaslin, professor of ophthalmology, University of Pittsburgh, discussed the mass glaucoma screening program recently conducted in Pittsburgh (reported in the Spring Issue of the *Review*); Mary Louise Free, R.N., described the inauguration of vision screening projects in nine counties of

Before the opening session of the annual conference Dr. Ira V. Hiscock, National Society president, chats with Dr. Roscoe P. Kandle, deputy commissioner, N. Y. City Department of Health, left, and Bosse B. Randle, director of public health nursing, Nassau County Department of Health.

Dr. David E. Price, assistant surgeon general, Public Health Service, U. S. Department of Health, Education, and Welfare, addressed the Conference luncheon on the goals and problems in sight conservation.

South Carolina; and Mrs. Alina Drake outlined the development of the Illinois Eye Bank. Their papers appear in this issue.

"Testing the Public's Knowledge about Eye Problems" was the subject of a report by H. Frederick Kilander, Ph.D., professor of education at New York University. He described studies which began in 1935 and have continued to date. While there has been a slight but steady improvement in the level of information held by adults and students in that period many misconceptions are still evident. People still hold to the superstition that the application of raw meat is good treatment for a black eye; only two out of five know that astigmatism refers to imperfect curvature of the eye; only half of those tested know the meaning of glare; and only the same proportion know how best to arrange a chair and writing desk in a room with respect to windows.

Dr. Kilander said that there is a continuous rise in the level of health information for successive grades in school and college. Adults vary considerably, depending, of course, upon their level of education.

Arthur H. Downing, M.D., chairman of the professional advisory committee of the NSPB Iowa Committee, closed this session with an interesting discussion of the papers presented.

Partially Seeing Children

The afternoon of the first conference day was devoted to a panel discussion of current trends in educational services for partially seeing children. The participants were educators and consultants from the New York City schools, under the chairmanship of Mrs. Helen Fields, director of the bureau of education of the visually handicapped, New York City Board of Education. Mrs. Dorothy Bryan, assistant to the director of the division for exceptional children, Illinois State Department of Public Instruction, presided. The panel discussion, which will be reported in the next issue of the

On behalf of the National Society, Celeste Holm accepts a check for $10,000 for field study grant from Knight Templar, Avery L. Bullen.

Review, was summarized by Miss Mary Fitzgerald, assistant director, bureau of health education, New York City Board of Education.

Eyes in Industry

Four viewpoints on industrial vision conservation were presented at the morning session on Thursday, February 26. Dr. Ralph W. Ryan's paper on the medical aspects appears in this issue. Other speakers, whose discussions will be published later, were: Katharine Lembright, R.N., assistant executive secretary, occupational nurses' section, American Nurses Association; George T. Brown, assistant to the president, AFL-CIO; and Francis J. Corrigan, director of personnel, Carpenter Steel Company.

A feature of this session was the presentation of a citation to Union Carbide Metals Corporation for "outstanding and continuous efforts to preserve the sight of its employees through vigorous devotion to the proved principles of industrial eye safety." The company is the first to enroll 1,000 members in the Wise Owl Club, the organization sponsored by the National Society in the interest of eye protection in industry. Employees who have escaped accidental injuries because they wore proper eye protection for their jobs qualify as Wise Owls. There are now more than 17,000 enrolled in the United States (including Hawaii) and Canada.

W. E. Comb, vice president of Union Carbide Metals, said in accepting the award that he considered it "an honor and a privilege to represent the thousands of Metals employees who, by their conscientious wearing of goggles, have made this citation possible."

"As pioneers in industrial safety,"

Walter E. Comb, vice president of Union Carbide Metals, left, accepts from NSPB Board Chairman Mason H. Bigelow citation for the company's outstanding and continuous efforts to preserve the eyesight of its many employees.

Mr. Comb continued, "we have recognized the importance of eye protection on the job. Membership in the Wise Owl Club, we feel, has helped immeasurably to implement and give added emphasis to our eye safety program.

"Throughout the ten-year period we have been associated with the Wise Owl Club, our employees have worked a combined total of 156 million hours. Through the use of safety glasses more than 1,000 employees were spared eye injury or eye loss. The use of safety glasses prevented one injury for every 145 thousand hours worked. To give you some idea of what 145 thousand labor hours means: one man working a normal work week of 40 hours would have to work 70 years to complete 145 thousand labor hours.

"At Union Carbide Metals the safety and welfare of our fellow employees are a vital part of our business. Our well-defined safety program has resulted in a continually improving record. In 1950 our frequency rate was 4.2 accidents requiring loss of time

from the job for each one million labor hours worked. This may be compared with 12 accidents for the iron and steel industry to which we belong.

"In 1957 our frequency rate was 2.3 compared to industry's 9.4. Last year our company achieved an even lower rate of 1.86 which is a real accomplishment for any industry."

The chairman of the industrial vision session was Harry E. Eiermann, senior engineer for research and development, Royal-Globe Insurance Group, New York.

Scientific Progress

Of particular interest to all delegates was the session devoted to a review of scientific advances in eye health and treatment of disease, held on the afternoon of the second day. Algernon B. Reese, M.D., clinical professor of ophthalmology, College of Physicians and Surgeons, Columbia University, was the chairman.

Dr. Gorman's paper on a new device for testing visual acuity of infants appears in this issue. Other speakers whose discussions will be published later were Graham Clark, M.D., associate in ophthalmology, College of Physicians and Surgeons, Columbia University, on "Cause and Management of Retinal Detachments"; Donald A. Fonda, M.D., assistant clinical professor of ophthalmology, New York University—Bellevue Medical Center, on "Value of Contact and Corneal Lenses"; Arnold B. Breakey, M.D., associate ophthalmologist, Lenox Hill Hospital, New York City, on "Detection and Treatment of Eye Trouble in Children with Cerebral Palsy"; and H. Richard Blackwell, Ph.D., director, institute for research in vision, Ohio State University, Columbus, on "Illumination and the Performance of Schoolroom Visual Tasks."

Public Relations

On the third day a lively and highly informative discussion on "Building Better Public Relations and Publicity on the Local Level" was conducted by a panel of experts under the chairmanship of William H. Kalis, vice president, Stephen Fitzgerald & Co., New York City. The other participants were Gordon Giffen, general manager, Radio Station WKDN, Camden, N. J.; Bob Boston, public relations director, Pennsylvania Working Home for the Blind, Philadelphia; and Walter Carty, vice president, John Moynahan and Associates, New York City. This session was one of the program highlights.

Friday Luncheon

The closing event of the meeting was the Friday luncheon, at which Dr. Hiscock presided. The principal speaker was David E. Price, M.D., assistant surgeon general and chief, bureau of state services, Public Health Service, Department of Health, Education, and Welfare, Washington, D. C. His inspiring address appears in this issue.

On this occasion the award of the Leslie Dana Medal was made to Robert F. Irwin, Jr. of Philadelphia.

Formal presentation of a $10,000 grant to the National Society for research in eye disease was made by Avery L. Bullen of Glens Falls, Grand Commander of Knights Templar of the State of New York. Mr. Bullen presented the gift on behalf of the Knights Templar Eye Foundation, Inc. Celeste Holm, Academy-award-winning actress, who is interested in sight conservation, accepted the check for the Society.

Leslie Dana Medal Awarded to Robert F. Irwin, Jr.

Robert F. Irwin, Jr. of Philadelphia, center, wears the Leslie Dana Medal presented to him at the conference luncheon by Mrs. Lee Johnston, executive director of the Lighthouse—St. Louis Society for the Blind. At right, Mason H. Bigelow, NSPB board chairman. The award was given in recognition of Mr. Irwin's many years of devoted service to blindness prevention.

ROBERT F. IRWIN, JR., prominent Philadelphia attorney and National Society board member, was awarded the Leslie Dana Medal on February 27 at the 1959 Annual Conference of the National Society. This award was established in 1925 for "meritorious work in the field of prevention of blindness and sight conservation" and is administered by the Lighthouse—St. Louis Society for the Blind. Mrs. Lee Johnston, executive director of that organization, made the presentation.

Mr. Irwin has given more than 25 years of service in the field of blindness prevention. He began his activities as a sponsor of the Philadelphia Committee for Prevention of Blindness and is currently a member of the Board of Managers of the Pennsylvania Working Home for the Blind.

At the medal presentation ceremony Mason H. Bigelow, National Society board chairman, paid tribute to Mr. Irwin's devoted service, pointing to his early efforts to have legislation passed in Pennsylvania requiring prophylaxis of the eyes of the newborn in order to prevent blindness from ophthalmia neonatorum.

He also supported legislation which was passed to control use of fireworks.

Mr. Irwin played an important role in initiating in 1945 a pioneer mass glaucoma screening project in the Philadelphia area. The success of this created nation-wide interest and led to the development of similar projects in many communities.

Mr. Irwin is a partner in the law firm of Irwin & Kelvin, and director of Irwin-Harrisons-Whitney, Inc. He has served as a member of the National Society's board since 1943, and held the office of vice-president from 1951 to 1954.

THREE AGENCIES JOIN NATIONAL HEALTH COUNCIL

At the annual meeting of the National Health Council, held in Chicago March 17 to 19, announcement was made of the affiliation of three organizations, bringing the total number of agency members up to an all-time high of 65. The new members are the American College of Preventive Medicine, the American Medical Association and the American Hospital Association.

The National Health Council was established in 1921 and the National Society for the Prevention of Blindness has been a member since its earliest days.

The next forum of the National Health Council will be held in Miami Beach, Florida, the week of March 13, 1960, and its theme will be "Health of Older People." Edward L. Bortz, chief of the medical service at Lankenau Hospital, Philadelphia, is chairman.

STUDY LENS PROTEINS

As part of its long-term investigation of the lens and the mechanisms producing cataract the Howe Laboratory of Ophthalmology of Harvard Medical School announces in its annual report a project for the study of lens proteins. The work is under the direction of Dr. Jin H. Kinoshita, assistant professor of biological chemistry, whose collaborator in the project is Dr. Abraham Spector, a specialist in protein chemistry. In seeking to discover the processes by which the lens maintains transparency, the synthesis and breakdown of proteins will be studied in the calf lens. The organ culture technique developed by the Laboratory makes it possible to study the incorporation of amino acids into the lens proteins under physiological conditions similar to those in the eye.

ARMED SERVICES EASE VISUAL STANDARDS

Visual requirements for admission to service academies are becoming less stringent as competition with civilian colleges mounts. Lt. Col. Elmer S. Friedberg of the Air Force Reserve gives details of the new standards in the *Optical Journal and Review of Optometry* for March 1, 1959.

All three branches of armed service continue to disqualify candidates with certain types of ocular pathology. But students may now enter West Point if they have 20/20 corrected vision in each eye, not more than five and a half diopters of hyperopia or three of myopia—as compared with two diopters of hyperopia and three-quarters of a diopter of myopia, the 1956 standard.

The Navy continues to require normal color vision and 20/20 visual acuity of each eye without correction, but will not drop a midshipman at Annapolis if his acuity diminishes after admission, provided it is correctible to 20/20. The U.S. Air Force Academy at Colorado Springs will admit candidates with corrected 20/20 vision and a color sense adequate for recognition of red and green at a distance.

GOALS AND PROBLEMS IN SAVING SIGHT

DAVID E. PRICE, M.D.

Assistant Surgeon General, Public Health Service
U. S. Department of Health, Education, and Welfare

The Public Health Service is constantly engaged in finding effective ways to apply new medical knowledge on a broad scale.*

FOR those of us who represent the Public Health Service it is always a pleasant occasion when we can meet with friends and allies; and no voluntary health group is an older friend or a stronger ally of the public health profession than the National Society for the Prevention of Blindness.

Our friendship began half a century ago, when the Society was created to fight a public health battle, and I am sure it will continue during the next half-century. The Society helped greatly to win that battle—against ophthalmia neonatorum. Other battles remain to be won. I know we are going to carry on together.

We have recently been engaged throughout the Public Health Service in setting goals for ourselves—positions we hope to reach, or see the country reach, a decade or so from now. It is stimulating to be reminded that even after half a century of health miracles there are still new opportunities for discovery.

Glaucoma Screening a Goal

Let me outline just one goal that we have set in the field of sight saving. We have been ambitious enough to say that we hope to witness in the reasonably near future the annual screening of at least two million adults for glaucoma, cataracts, and other eye conditions. We believe it is a realistic goal to expect that this number of Americans can be examined for these defects each year in physicians' offices, in clinics and similar locations.

When we speak of two million screening tests a year we are really proposing to focus the full strength of preventive public health techniques on the national problem of saving sight. By "we" I don't mean the Public Health Service alone. Such an undertaking calls for the combined efforts of voluntary groups such as the National Society for the Prevention of Blindness, of state and local health departments, and of the medical profession itself. All of us must be allies in a job of this magnitude.

Early Detection

In the field of glaucoma we are already tooling up for what seems indicated as the Public Health Service part of this cooperative effort. Glaucoma is worth stressing, we believe, not only because it is the second leading cause of blindness (only cataracts are more common) but also because its toll is *preventable*. Prevention through early detection is the classic public health formula.

* Presented at the Annual Conference of the National Society for the Prevention of Blindness; New York, February 27, 1959.

Problems should be challenges, not reasons for failing to take action. But they do represent questions that have to be answered before we can reach our goal. The part of the Public Health Service with which I am associated—the Bureau of State Services—has a very practical assignment: to help state and local health departments put the results of research to work. "Pure" research is not our assignment, but applied research is. We are constantly engaged in studies designed to learn better ways to apply new medical knowledge on that broad scale which is public health practice.

There are various methods of screening for glaucoma. Before recommending any particular technique we felt it necessary to evaluate existing methods and to determine their relative efficiency and adaptability to public health procedure. The Public Health Service has accordingly initiated cooperative validation studies of this nature at Johns Hopkins University, at the University of California, and at the John Gaston Hospital in Memphis.

Sterilization of Tonometers

At the Wilmer Ophthalmological Institute of Johns Hopkins we are cooperating in an even more specific study—testing different methods for sterilizing tonometers. The tonometer has proved a useful instrument for detecting glaucoma, but there remain certain technical difficulties associated with its employment. It must be sterilized to avoid possible cross-infection between patients, and current sterilization methods are time-consuming. If a simple, rapid sterilization technique develops out of our Baltimore study one of the stumbling blocks in the path of wider use of tonometry throughout the country will have been removed.

Other problems raised by the tonometer include determination of types of personnel qualified to practice tonometry, patient reaction to the applying of the required anesthetic to the eye, and the wide range of opinion concerning the accuracy of the several kinds of tonometer now in use.

Public Education

Not all problems are technical in nature. Public education in the field of glaucoma—as in all areas of public health—is a special and most provocative problem all by itself. The National Society for the Prevention of Blindness has done excellent pioneering work. There will be many opportunities for cooperation between us in the years ahead if we are to reach that estimated two per cent of the adult population that may have undiagnosed glaucoma.

This work is centered in the Chronic Disease Program of our Division of Special Health Services. This is the section of our Bureau which concentrates on the health problems of the aged, an area of public health concern that is already vital, and is sure to become even more significant as the elderly element in our population continues to increase. If there are 21 million Americans over 65 years of age when we reach 1970, as statisticians now predict, the fact that 52 per cent of all blindness is found in the 65-and-over group acquires added importance as a danger signal. Indeed, according to estimates made by the National Society in 1957, about eight out of 10 cases of blindness occur among people 40 years of age or older. Preventive action to improve the health of this

very large segment of our population is the chief task of the Public Health Service's Chronic Disease Program.

Study of Eye Injuries

At the other end of the age scale we find ourselves concerned with loss of sight in children as a result of accidental injury. Some of our research is concerned with that five per cent of blindness in school-age children that is caused by an accident. The Accident Prevention Program of our agency, in a recent study conducted in a New England city, found that of some 20,000 accidental injuries treated in hospitals during the course of a year over 900 were injuries to the eye. Reducing this toll will preserve the sight of countless children as well as adults.

We are studying the environmental and behavioral conditions that contribute to loss of sight. On the basis of such information it should be possible to design safety programs and other educational campaigns that will significantly reduce the number of eye injuries.

Other activities in the Bureau of State Services that for many years have been concerned with the prevention of blindness include the Heart Disease Control Program, which has worked with the problems of cardiovascular conditions affecting sight, and the Occupational Health Program, which has cooperated with public and voluntary health agencies in helping to curb the industrial causes of eye damage.

Common Goal

Not all our objectives are as clearly defined as the two-million-a-year figure for screening procedures that I have mentioned. There is, however, one common goal that all of us engaged in the sight-saving effort must agree upon. The present incidence of blindness in this country—17 per 100,000—must be steadily reduced. The varied approaches of the different branches of the Public Health Service are aimed at this goal, as are the many activities of the National Society.

The rate of progress we can jointly achieve will be importantly influenced by the pure research in disorders of vision now being carried on throughout the country. The National Institute of Neurological Diseases and Blindness is the Public Health Service's operating agency in this field. Last year the Institute devoted more than three million dollars to this type of research, allocating funds for projects relating to cataracts, glaucoma, retinopathy, uveitis, keratitis, and other metabolic and degenerative disorders of the eye.

A few years ago a cooperative research program, in which the National Society joined forces with the Institute, established that the routine administration of oxygen to premature infants was resulting in a high incidence of retrolental fibroplasia. The importance of curtailed use of oxygen in these cases was demonstrated, and the research findings were disseminated to hospitals through medical and public health channels. This heartening experience, still fresh in our memories, illustrates the potential for rapid and effective translation of new knowledge into public health action.

Equally encouraging, as we regard our future goals, is the record of the virtual elimination of ophthalmia neonatorum through the application of prophylactic treatments to the eyes of newborn babies.

Small goals have little meaning, and less power to inspire men and women. If it is true, as authorities in the field have estimated, that one-half of all blindness occurring in the United States is preventable, then our ultimate joint goal can scarcely be less than *preventing* that proportion of all blindness. By the time we reach such a goal we may well discover another beyond that—the prevention of an even larger percentage of blindness—even as the climbing of one hill often reveals another in the distance.

Working Relationships

I have touched on some of the technical problems we are working to solve in our progress toward these goals. In this area of health work there is one problem we do not expect to encounter, because we have never encountered it in the past, and that is the problem of understanding and cooperation between public and private agencies. At all levels—Federal, state and local—the working relationships between governmental and non-governmental agencies in the sight-saving field have been uniformly excellent. There is so much work to be done that each group has been glad to single out what it can do best. I know this will continue to be the pattern for the future. In the same way that Dr. Franklin Foote comes to Washington to sit with the advisory committee that helps our Chronic Disease Program to chart its course in glaucoma detection, so, I am sure, representatives of the National Society's affiliates will find equally valuable ways to give the benefit of their experience to state and local health departments.

In this country, as nowhere else in the world, it is a tradition for citizen and official groups to work together for the common good. The record of this cooperation in the health field has been especially fine, and remarkably productive in the years since World War II.

The all-important third party in our partnership is, of course, the profession of private medicine. If I have stressed mainly the public health-voluntary association relationship it is because the friendship between our two groups is such an old one that I have literally felt like one of the family. It is perhaps not amiss to make clear that the National Society and the Public Health Service have always designed our programs to support the vital work of the ophthalmologists, and of all private physicians who carry the front-line responsibility for protecting the Nation's eyesight.

The goals we have set for ourselves are so elevated, the problems we recognize are so formidable, that only through genuine, complete, devoted mutual effort can we achieve what we have jointly sworn to achieve.

IT CAN'T BE DONE

"Myths About Your Eyes" is the subject of a recent article in *Good Health* by Edward S. Gifford, Jr., M.D., chief ophthalmologist of Pennsylvania Hospital, Philadelphia.

"Widely believed," he writes, "is the myth that a surgeon removes the eye from its socket when he performs eye surgery. This is completely untrue. Once an eye is removed it can never be replaced. One of my patients looked at himself in the mirror after I had operated on him to straighten a crossed eye, and decided that I had replaced his eye upside down. He remained doubtful though I assured him I could not possibly have made such an error even if I had wished."

A DEVICE FOR TESTING VISUAL ACUITY IN INFANTS

JOHN J. GORMAN, M.D., DAVID G. COGAN, M.D.
and SYDNEY S. GELLIS, M.D.

In tests with a new apparatus newborns are found to have better visual acuity than was previously believed.*

PHYSICIANS now use various instruments to discover the condition of the infant eye in terms of possible organic damage. But a thorough eye examination is time-consuming, requires use of anesthesia and offers only inconclusive evidence as to visual acuity of a young baby.

The principal difference between an eye examination of a newborn and of an older child or adult is the degree of cooperation a physician may expect. The device we have developed is designed to test the infant's response to visual stimuli, through movement and fixation of the eyes. The test takes only a few minutes and does not require the baby's cooperation.

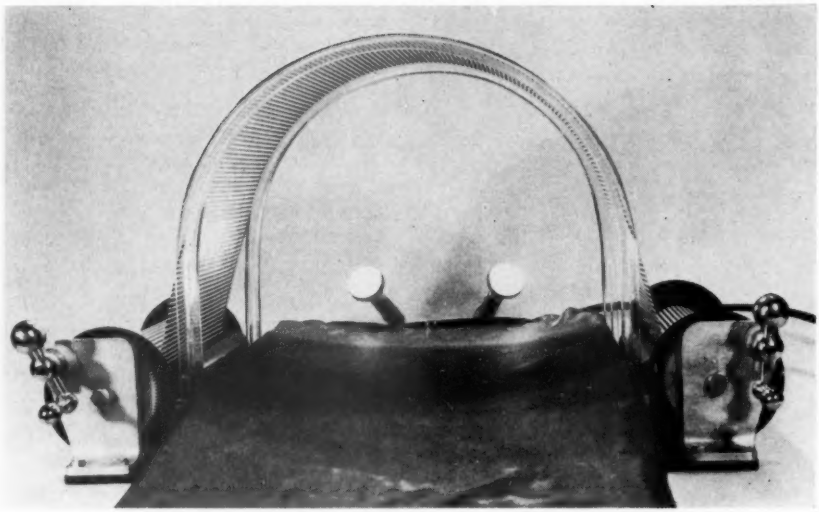
The device is intended to induce optico-kinetic nystagmus, known more familiarly as railway nystagmus in which the eyes of a passenger looking through a train window follow the passing telegraph poles in a rhythmic pattern. This movement is similar to vestibular nystagmus in that there is a slow and fast component.

Early Developments

Our first tests were made with a simple striped drum, such as is used by ophthalmologists and neurologists when looking for alterations in the response pointing to varied intracranial pathology in adults. This was about the size of a kymograph, covered with vertical stripes, and was rotated at various distances in front of the baby's eyes. The occurrence of the response was so inconsistent in a number of infants from one to four months old that it was very difficult, if not impossible, to quantitate, and the drum was therefore abandoned.

Next, a cyclinder adapted from the one used by McGinnis was constructed. This was two feet in diameter and two feet in depth, with lines on its inner surface. The child was placed in it, lying in a small hammock. The cylinder was rotated around the infant by means of a motor and the speed controlled with a rheostat. The subjects were 60 babies under the supervision of Dr. Alfred J. Vignec at the New York Foundling Hospital, varying in age from eight days to four months. They were tested at feeding time and were fed while in the apparatus, thus insuring their wakefulness and immobility. Of the 60 babies only four failed to respond. One of these was known to

* Presented at the Annual Conference of the National Society for the Prevention of Blindness; New York, February 26, 1959. Supported in part by a research grant from the National Society.



The infant is placed under the arc of paper which is illuminated from behind his head.

be blind, and another was suspected of being so.

With such a high percentage of positive responses we were encouraged to consider using the response as a basis for investigating the development of visual acuity in early infancy and childhood and, if possible, for establishing standards, since to date this has been done with only questionable accuracy. In addition we hoped to standardize the construction of a simple apparatus for use in the average office for determination of presence or absence of vision.

Portable Model

An apparatus was then devised which simulates the effect of the rotating cylinder, but is of less bulk and awkwardness, so that it can be transported and used with greater convenience. It consists of a roll of white paper, 9 inches wide and 42 feet long, on which black stripes are printed. The stripes are equidistant and of the same thickness as the white spaces between. Every six feet the stripes and spaces become wider. The whole roll is reeled manually from one spool to another over two narrow one-inch-wide Plexiglas arcs with six-inch radii. The edges of the paper rest on these arcs; and the paper has enough thickness and rigidity to maintain its shape without buckling as it is reeled. The infant is placed under the arc of paper which is illuminated from behind his head by two small 25-watt floodlights.

There are no available data on the visual acuity of newborns, and only roughly estimated and approximate data on young infants in general. Worth places it at "at least" 20/2500 at four months, and Schwating at 20/400 at six months. These estimates guided us to some extent in our choice of the width of lines and spaces. The finest pattern used consisted of lines and spaces of .02 inch which when

viewed at six inches would be the equivalent of 20/200. The next size was .06 inch which is the equivalent of 20/600.

Speed Factor

In relation to speed two things had to be considered: the flicker fusion frequency phenomenon, and the effect on acuity of motion per se. As to the latter, Ludvigh found that motion had an adverse effect upon acuity, and he was able to correlate the percentage loss with the angular velocity of the object viewed. He found that at angular velocities of 20 degrees/sec. acuity drops a little more than one per cent; and with increasing speeds the drop becomes more marked. The apparatus we have used has a gear ratio which moves the paper along at approximately .7 inch/sec. when the handle of one spool is turned as slowly as possible, at the same time maintaining a smooth rotation. This amounts to an angular velocity just under 7 degrees/sec. This speed, we felt, should have a minimal effect on acuity.

Although there are no standards for critical flicker fusion frequency in this age group the rate of flicker at which fusion occurs at the illumination we have used is approximately 50 light stimuli/sec. in the average adult. Since at a speed of .7 inch/sec. the paper bearing the finest pattern would expose a stationary eye to only 17.5 white lines/sec. we were again spared the effect of a factor which would complicate the findings.

The distance of six inches was chosen because of work on visual fixation in infants performed by C. L. Bing, who found that there was a period in the development of fixation when the infant was not capable of maintaining sustained fixation on the object stimulus beyond a distance of eight inches.

Dr. Gorman then showed a film to demonstrate the apparatus in use and commented on it.

Optico-kinetic Response

In this film the first subject shown is an adult, in order to demonstrate well-established optico-kinetic nystagmus. A mirror is taped to her forehead so that the lines passing over her eyes will be reflected in the camera. She sees the finer pattern of lines, and reacts to it in exactly the same way as to the larger pattern which follows along a little later. At two intervals her regular optico-kinetic response stops and the eyes move steadily in one direction. This response resulted from a command to fix and follow one line.

A four-day-old infant is then placed in the apparatus. His attentiveness is obvious. A close-up of one eye taken with a telephoto lens shows an excellent response.

Test Results

In the first series using this new apparatus 100 newborns from the nurseries of the Beth Israel Hospital, Boston, were tested. They were placed in the apparatus when awake and relatively quiet. It was unnecessary to feed them because they were so young that there was not enough head movement to interfere with the examinations. The upper limit of age was 5 days. Of these there were 21 infants under 1 day; 28 from 1 to 2 days; 18 from 2 to 3 days; 18 from 3 to 4 days; and 15 from 4 to 5 days. The youngest tested was 1 hour and 20 minutes old.

The responses were graded and des-

ignated as negative, fair, good and excellent. They were called excellent when nystagmus was elicited immediately or shortly after placing the infant in the apparatus, or if the pattern of nystagmus was well sustained throughout the testing after having once been elicited. They were called good if there were periods of well-sustained nystagmus, though interrupted by obvious conditions which might be expected to interfere with the response, such as sleepiness, crying or marked restlessness. They were called fair when the periods of nystagmus, although present and definitely in rhythm with the passage of lines, were short and intermittent without any obvious reason. Responses were designated as negative when there either was no nystagmus at all or if it was so fleeting that it could not with any certainty be attributed to the stimulus of the passing lines. Some subjects were reevaluated at other times but some were not, since the infants were not always available for retesting. A time limit of 10 minutes was placed on each observation; this was exceeded in only one or two instances. In over half the cases the examination was completed in from two to three minutes. Two infants were restless and crying throughout the entire period so that the examination was listed as entirely unsatisfactory and they were excluded from the series, two others taking their place.

The procedure which was almost invariably followed after the infant had been placed in the apparatus in his natural position of rest was that of exposing him to the passage of the finest pattern of lines (.02) first, following with the next largest (.06), etc. The size line at which the first positive response was elicited was noted.

Although there were variations, the usual positive response consisted of:

1. No reaction to the passage of the .02 pattern.
2. A sudden and marked widening of the palpebral fissures immediately upon or soon after the beginning of the .06 pattern coming in line with the direction of gaze.
3. A slow, smooth, following movement (corresponding approximately to the motion of the striped paper) to the limit of excursion.
4. A swift saccadic (righting) movement, the eye going back to a more central position.

The above cycle recurred rhythmically.

High Percentage of Responses

Of the 100 newborns none responded to the finest pattern, .02. There were 93 positive responses to the .06 pattern; 52 excellent, 31 good, and 10 fair. However, four of those listed as positive were negative on the first examination. One response listed as negative on the fourth day became fair on the fifth; two others listed as negative on the fourth day became good and excellent respectively on the fifth; and one baby listed as negative on the third day became good when reexamined three days later. (This was the only instance in which the five-day limit was exceeded.) Of the seven subjects with negative responses only two were tested more than once, the others being unavailable for reexamination.

The percentage of excellent responses was fairly evenly distributed over the five days, there being as many on the first day—even a little more—as on the fifth.

Since this series was completed we have acquired a larger range of line patterns and have tested an additional 100 newborns, all under four days. We found that all responded to line patterns which would represent a visual acuity of approximately 20/450, and that a large percentage of these responded to a pattern representing 20/350.

Thus it would appear that newborns have acuities which are much better than was previously believed; and that the apparatus we have demonstrated gives us a means of testing visual acuity in small infants. Its major value will be to provide the physician with a definite clue to an infant's need for more exhaustive examination and treatment.

DIAGNOSIS BY MACHINE

An electronic computer which analyzes hundreds of factors in corneal disease and delivers a complete list of possible diagnoses has been built by IBM on the specifications of a French ophthalmologist, Dr. François Paycha. As the inventor states the principle behind his extraordinary machine, diagnosis is extremely complex, an art in itself, but it is possible to trace in it a logical process. "This logical process is amazingly simple, because it comprises a series of comparisons between what the doctor knows about ailments and what he knows about his patient. . . . Mechanization can solve the difficulties arising from the inadequacy of our memory, and is the sole means of utilizing the whole body of knowledge."

The machine thus does the memorizing for the doctor, leaving him free to exercise his judgment, Dr. Paycha said in a report to the French Society of Ophthalmology in 1957. If one were to take into account all the factors in corneal disease, he would have to remember 200 corneal symptoms, more than 1,000 syndromes and 500 etiologies.

At the conclusion of Dr. Paycha's paper a colleague, Dr. Dubois-Poulsen, described how simply the complex computer functions. He was the first to try it out on a group of patients with corneal disease. Cards were punched to show whether a patient had, or did not have, eight key symptoms. They were fed into the machine, which gave for each patient a list of five or six possible diagnoses. The lists included those Dr. Dubois-Poulsen had previously arrived at, and also others which had not occurred to him.

In a recent letter to the National Society, Dr. Paycha said that he was preparing a set of punched cards for the pathology of the cornea that could be used by any ophthalmologist.

JAYCEES COOPERATE IN PRESCHOOL SCREENING

As part of its community health program the U.S. Junior Chamber of Commerce is sponsoring a project for screening the vision of preschool children in communities where no service of this kind has been organized. Jaycees are advised to contact the state chapter or committee of the National Society for the Prevention of Blindness, or national headquarters, for guidance in setting up screening projects in cooperation with various community agencies, and under proper medical supervision. After the first year's pilot study, Jaycees should have an idea of how many preschool children need eye care, and what local facilities are available to provide the necessary services.

Operation of the Illinois Eye Bank

ALINA DRAKE
Executive Secretary
Illinois Society for the Prevention of Blindness, Chicago

Organized by the Illinois Society for the Prevention of Blindness with the cooperation of the Chicago Ophthalmological Society, it has functioned with increasing success over a period of years.*

THE Illinois Society for the Prevention of Blindness was asked by the Chicago Ophthalmological Society in March 1947 to consider cooperating with them in the establishment of an eye bank for Illinois. Mrs. Ben Humphries Gray, my predecessor, whose ability and foresight were unlimited, reasoned that the problem was definitely one of prevention of blindness; more specifically, restoration of vision. It certainly would have been costly community planning to set up a new organization; the Society was the logical agency to take on the task. After doing some very careful figuring, the Board of Directors and Mrs. Gray were convinced that the initial job of organization could be done for very little additional cost.

A special Eye Bank Committee was appointed by the Chicago Ophthalmological Society to determine and guide medical policies of the eye bank, because the Society insisted that all medical policies be in the hands of competent medical authorities. The members of the committee represent the great medical schools in Chicago. Cook County Hospital offered the necessary depository and laboratory facilities free of charge. The problem then resolved itself into the organization of existing community services, with the Illinois Society acting as coordinator.

First it was necessary to get the Attorney General's opinion as to whether donation of eyes to an eye bank was permissible under Illinois law. Dr. Roland Cross, director of the State Department of Public Health, secured that opinion—a favorable one—so we moved ahead with plans.

Organizing for Service

In contrast to the far-reaching publicity campaign that had been conducted in Illinois for a safe and sane Fourth, the organization of the eye bank called for a minimum of publicity. The dramatic possibilities of this new development were obvious. However, corneal transplantation is indicated in a comparatively small number of cases, and the Society decided to work very quietly so as not to build up false hopes.

Many details were worked on simultaneously. A very important packaging problem was solved for us by Container Corporation of America, which designed and produced without charge the container we needed for transporting the donor eyes. Interna-

* Presented at the Annual Conference of the National Society for the Prevention of Blindness, New York, February 25, 1959.

tional Printing Ink Co. and Ace Electrotype Co., both of Cleveland, who worked with Container Corporation, refused to submit bills for their work.

The Red Cross Volunteer Motor Corps agreed to provide transportation on a 24-hour emergency service. Donor eyes must be removed under strict surgical procedures within three hours after death. Corneal transplantation must be performed within 24–36 hours, necessitating the cooperation of Illinois hospitals in split-second timing of all activities.

Requests for donor eyes for patients in need of corneal transplant are filed with the Illinois Eye Bank and filled in the order received—whether for clinic or private patients. Only qualified ophthalmic surgeons are eligible to file such requests. Eyes not needed in Illinois are sent to the New York Eye-Bank for Sight Restoration, Inc. via Eastern Airlines, which transports them without charge.

Public Education a Factor

The Illinois Eye Bank was ready for business on September 1, 1947 at an initial cost to the community of less than $500. In the early hours of the morning of October 27, 1947, the first call was received. The Red Cross Volunteer Motor Corps made the delivery at 1:30 a.m. in the worst rainstorm of the season. The first doctor on the list was advised that an eye would probably be available for corneal transplantation and to stand by for final word. In a few hours we knew that we had two good corneas. A second operation could not be scheduled so, with time running out, Red Cross picked up and delivered the eye to Eastern Airlines. It reached New York for use within the allotted time.

During the first years of operation the number of eyes received at the bank was relatively small, and the majority of them were sent to New York. It is understandable that a new program, with as much emotional involvement as the donating of one's eyes, would develop slowly. Public acceptance presupposes understanding and the alleviation of fears and misconceptions. It calls for definite emphasis on the positive element of leaving a legacy of sight, rather than pointing up death as an essential to the fulfillment of the donor's generosity. It requires a constant, uninterrupted education program.

In the case of the Illinois Eye Bank this education has been slow; but steady and rewarding. In 1947 the number of donor eyes received was 11; in 1948 it was 20; and in the following years up to 1956 it ranged from 17 to 59. But, even with the broad interest in the program and the increasing number of donor pledges, the number of available eyes was relatively small.

Full-Time Coordinator

In February 1956 Mrs. Gray finally realized her goal of having a full-time person assigned to the program. When one knows that an average transaction takes 20 phone calls, and that if one link in the chain breaks down we start all over again, one can imagine the burden which was being carried by the individuals who were assuming this responsibility in addition to their other duties.

We were indeed fortunate to have on our staff at the time a person who had the particular skill and interest to take over the coordination of activities. Stella Brueggen, R.N., was assigned on a full-time basis, her role

being to develop and sustain contacts with the hospitals, the nurses and cooperating community groups. A particular advantage was the fact that she knew Cook County Hospital well, having had her nurse's training there.

As a result of Miss Brueggen's concentration on the eye bank program, the number of donor eyes has increased. In 1956 the number was 111; in 1957 it was 129; and in 1958 it was 210. Last year these gifts of eyes made possible 108 corneal transplants and two scleral transplants. Eleven eyes were sent to the New York Eye-Bank and 37 were used at the universities in Chicago for research on the histochemistry of the anterior chamber angle; histochemistry of the zonule; studies relative to protein metabolism of refractory media of the eye; and studies estimating the effects of retro-orbital pressure on scleral rigidity.

In April 1958 a vitreous bank was established which provided material for 53 implants performed in Chicago. There is growing need for vitreous just as for fresh corneal tissue; and vitreous, unlike the tissue, can be stored.

The waiting period for donor eyes is about a month, although this does not mean that every doctor waits a month. Just the other day a doctor filed his request, and was informed the next day that a crystal clear cornea was available. He was surprised and delighted, and said that his patient had hardly had time to get used to the idea of waiting, having been warned that although he should be ready at a moment's notice, he might have to wait three weeks.

All sorts of unexpected situations arise. In one instance we telephoned the chief resident at the Illinois Eye and Ear Infirmary that a donor eye was available. He immediately called his first patient, who agreed to come in. The doctor waited and waited; this being Saturday morning, the operating room had been specially prepared. Finally he called the second patient on his list. Both patients arrived at the same time. The doctor called us frantically; fortunately a second donor eye was available, so both patients had their operations.

In less than 11 years we have made available a total of 694 donor eyes—62 per cent more in 1958 than in 1957. In 1947 only a few ophthalmologists were doing corneal grafts in the Chicago area; today the number has increased considerably. The number of patients who have benefited has grown in proportion to the availability of the corneal tissue. And with the expansion of services, the expenses to the Illinois Society have multiplied. Over 15 per cent of this year's budget is allocated to the eye bank program.

The Eye Bank is just another example of an excellent board of directors, a staff, professional groups and other community agencies all working together. The Illinois Society is fortunate indeed to have the support and medical guidance of the Chicago Ophthalmological Society in carrying on this project. The growing demand for corneal tissue, for vitreous, and material for research purposes involves alerting the public and obtaining their cooperation. This in turn calls for a well-planned and executed program of public education. The request for donor pledges is increasing, as is the demand for other health education materials. We do not dichotomize—the eye bank is only one part of our total program of blindness prevention.

Industrial Vision Conservation
THE PHYSICIAN'S VIEWPOINT

RALPH W. RYAN, M.D.
Morgantown, West Virginia

A knowledge of modern plant conditions and processes is important to the eye physician who practices in an industrial area.*

INDUSTRIAL vision conservation is one of the greatest problems of industry. The ability of the worker to see what he is doing is a crucial factor in production. In general, whatever procedure a human being can see he can be taught to understand and to do. Conversely, it is difficult to learn to do something which cannot be visualized.

Because of the diverse problems of vision conservation and eye health and protection which tend to be peculiar to industrial production we have evolved a special field of eye care which we term industrial ophthalmology. The eye physician, in addition to his training in medical and surgical care of the eyes and the fitting of visual aids such as glasses, must add a knowledge of industrial processes and be able to cope with the special problems and dangers these processes hold for the eyes of his patients. This understanding of the factors involved in maintenance of efficient vision in all phases of industrial production becomes important whether the eye specialist merely practices in an industrial community or serves industrial concerns as a consultant.

Basic Factors

What constitutes a good industrial vision program? Analysis of many that are successful shows the following factors to be of extreme importance:

1. Provision for testing employees, both old and new, for visual skills and for eye disease.
2. Provision for correction or treatment of the defective conditions found during eye examination.
3. Analysis of jobs of the specific plant for visual requirements of employees.
4. Placement of new employees in jobs compatible with their visual abilities.
5. General engineering measures to increase visual efficiency and reduce hazards of eye injury wherever possible.
6. Use of individual visual aids and eye protective devices.
7. Adequate emergency first aid and medical care for eye injuries.
8. Education of groups and individual employees in eye health and safety.

Eye Examinations

Eye examinations may vary, depending on the visual requirements of a particular plant. In general they involve testing of visual skills and ex-

* Presented at the Annual Conference of the National Society for the Prevention of Blindness; New York, February 26, 1959.

amination for the presence of disease. The visual skills most commonly tested for are:

1. Central visual acuity at distance.
2. Central visual acuity at a desirable near point.
3. Muscle balance and coordination of the eyes.
4. Depth perception, including a stereoscopy test.
5. Discrimination of colors.
6. Size and character of the field of vision.

Central visual acuity is of the most general importance. However, the job analysis in a given plant or industry will determine what skills should be tested for. The testing is often facilitated by technician use of such devices as the Ortho-Rater, the Sight Screener and the Telebinocular. Employee scores on such devices are recorded in code on a punch card system; or they may be recorded in actual values.

Every applicant should have an examination by a physician eye specialist for eye disease prior to placement. Such diseases as glaucoma, which affects two per cent of people past 40, will then come under control rather than lead to eventual blindness of the employee, with all the attendant misery and economic loss.

The central visual acuity test and examination for disease should be repeated periodically on all employees, the intervals depending on the visual requirements of the industry and the age and condition of the employees. Other visual skills may be retested as needed.

Correction and Protection

If eye disease is detected in preplacement examination the employee is usually referred to his own eye physician for treatment. Due consideration is given to the nature of the disease process in evaluating the employee's capabilities.

If corrective lenses are needed they are made to the employee's prescription and sometimes furnished wholly or in part at the employer's expense. The prescription should not be more than one year old. Proper fitting and maintenance is very important. Even plano safety glasses should be as well fitted as personal glasses so that the wearer will be free of discomfort.

A suitable type of eye protector has been designed for every type of industrial hazard known. The surest way of safeguarding eyes is by means of a 100 per cent program of individual protection on a plant-wide basis.

Visual Job Analysis

Job analysis for visual factors is a task which varies tremendously among different plants and departments. In heavy industries such as mining or construction work most of the jobs may be classified under two or three levels of visual proficiency. In a large publishing house a wide range of visual profiles or patterns of visual skills may be utilized in selecting employees for a great diversity of tasks. Such analyses are best done jointly by qualified professional and plant personnel familiar with the specific duties of employees in the jobs.

Employee Placement

Placement of a new employee should be carried out on the premise that his visual proficiency is adequate for requirements of the job. Other factors of fitness will, of course, determine specific placement. Every effort should

be made to adhere to this rule or else the job analysis becomes worthless and the eye safety program will suffer.

Great caution must be exercised in reassigning old employees. Many of them have experience and training that outweigh small deficiencies in vision. Even the one-eyed driver of a truck with long experience may show a consistently good safety record. It is particularly difficult to shift old employees to positions that are less attractive in any way. Labor unions usually look with suspicion on changes in work status of their members unless justification is quite obvious.

Engineering Changes

Visual efficiency can often be increased greatly by revising industrial processes. Similarly, changes in production methods will often advance eye safety. The replacement of dangerous equipment and elimination of known eye hazards is the duty of industry insofar as practical measures can be found to effect these results.

Plant lighting improvements often increase production, decrease wastage of materials, promote general employee safety, and reduce fatigue. Illumination and suitable color schemes in the plant may change a depressing area into a cheerful one. The safety record and profits often reflect the improved mood of the workers. Adequate and balanced illumination, the use of light walls and ceilings, contrasting colors on machinery and surrounding surfaces, and the avoidance of glare are all useful safety measures which also improve visual efficiency.

Care of Injuries

Emergency first aid facilities should be provided in easy reach of all parts of an industrial plant, under recommendations of the plant physician and consulting eye physician. Persons with training in first aid care of the eyes should be available at all times. Any special eye hazards should be provided against. An eye fountain, shower or other means of quick irrigation of eyes is a must in areas where chemical eye hazards are present. Water irrigation is the universal first aid procedure for chemical eye injuries.

Provision for medical eye care in event of injury must be arranged in advance in relation to the size of the plant and the extent of eye hazards. The ophthalmologist who is familiar with the processes and hazards will be in a better position to give quick and efficient service in injury cases.

Importance of Education

Education in eye health and safety is one of the most important but often most neglected factors. The success of the program depends on how well the workers are sold on its value. Instruction may be given to groups in formal training sessions, in committee meetings with supervisors or union representatives, or on almost any occasion where employees are grouped and in a receptive mood. Films, posters, leaflets, plant newspapers can all be utilized to carry the gospel of safety for eyes. Special campaigns and incentive programs are often very effective. Individual instruction may be given by supervisory personnel or by fellow workmen on the job.

The Wise Owl Club safety incentive program sponsored by the National Society has had phenomenal success. Workers whose eye protection has saved them from serious eye injury become members of the club and re-

ceive official attention in plant publications and meetings. This movement is spreading rapidly because of its simplicity and appeal. More than 17,000 members have been enrolled.

Returns and Rewards

The value of a well-planned and persevering program of plant eye health and safety has been proven a multitude of times. The returns come in many forms:

Placement of workers on jobs compatible with their visual skills increases production and increases safety.

Detection of eye defects and disease usually leads to their correction or treatment. This gives better vision on the job. Better vision means greater production of better quality products and decreased wastage of materials.

Decrease of eye injuries reduces workmen's compensation costs, prevents loss of time and loss of valuable employees.

Employee attitude is improved, leading to better industrial relations.

The net result is shown directly or indirectly in increased profits to the employer, increased earnings of the employee, and fewer injured or blinded eyes with their cost in economic loss and human suffering.

GLAUCOMA IDENTIFICATION CARD

Following the practice of giving diabetics a card showing that they are using medication, physicians may now give glaucoma patients an identification card with their drug prescription. The idea was developed by the National Foundation for Eye Care, and the cards were printed as a public service by Abbott Laboratories, North Chicago, Illinois, which will send packets to physicians who request them.

TONOMETRY IN GLAUCOMA SURVEYS

The following report has been prepared by the Committee on Industrial Ophthalmology, Council on Industrial Health of the American Medical Association, and is reprinted from *The Journal* of the Association, issue of January 31, 1959.

"The primary objective of any glaucoma survey is to discover all cases of undiagnosed glaucoma possible but not to treat, observe, or study the course of known glaucoma cases. Such a survey is most effective when the greatest number of individuals are adequately examined in the shortest possible time and with the least disturbance to their routine, by a minimum of personnel and with the minimum of equipment. The Committee feels that tonometry, the measurement of intraocular tension, is a safe procedure when properly performed by a person trained in the method and the program set up under the guidance of a consulting ophthalmologist and is the best of the various screening methods to employ in a glaucoma survey."

The members of the Committee on Industrial Ophthalmology are Edmund B. Spaeth, chairman, Philadelphia; Franklin M. Foote, New York; Ralph S. McLaughlin, Laconia, N. H.; Joseph F. Novak, Pittsburgh; Ralph W. Ryan, Morgantown, W. Va.

1960 NSPB CONFERENCE

March 30–April 1

Brown Palace Hotel

Denver, Colorado

Volunteer Vision Screening in South Carolina

MARY LOUISE FREE, R.N.
Pediatric Consultant Nurse
South Carolina State Board of Health

As the result of demonstrations in nine counties the schools, health departments and parents have become allies in meeting the eye health needs of the children.*

NURSING services for the 1,266 public schools and the 29 parochial schools of South Carolina are provided primarily by generalized public health nurses. Only 30 nurses are employed by schools or departments of education, and these are in the larger cities. The 175 staff public health nurses have the responsibility of carrying a total public health nursing program which includes school health; thus the services to the schools are necessarily limited.

The amount of service given varies according to the interest of the school administrators, teachers and nurses. In making the initial vision screening survey it was interesting to observe that in some areas where the nurses felt more secure in their knowledge of school health and in their ability to work with school personnel there were no vision screening programs. These nurses thought that the little time they had to spend in schools might be used to better advantage if they served as consultants.

When the teachers were asked to do vision screening their response was either that their responsibility was to teach and they did not have time for screening, or that they considered this to be a function of the nurse. Consequently, the discovery of visual problems of the children was sadly neglected. Although there had been some screening of school-age children nothing had been done for the preschool group.

Impetus to Program

Two things happened early in 1956 to give impetus to an evaluation of the school health program: (1) A pediatric nursing consultant was added to the staff of the maternal and child health division of the State Board of Health who would be able to work with the health education consultant, State Department of Education, in coordinating the services of the state and local departments; and (2) the National Congress of Parents and Teachers invited representatives from 20 agencies and organizations to discuss "The Periodic Health Appraisal for Children from Birth Through High School," with special emphasis on ways in which state congresses and local PTA groups might cooperate most effectively with local health and education

* Presented at the Annual Conference of the National Society for the Prevention of Blindness; New York, February 25, 1959.

departments. One of the recommendations that came out of this meeting was: "That the National Congress of Parents and Teachers recommend to its local units a promotional and educational program that will tend to bring children and their parents into effective contact with the health resources of the community."

As a result of this recommendation the health chairman of the South Carolina Congress invited the chairman of the school health committee of the South Carolina Medical Association, the state director of the maternal and child health division of the State Board of Health, the pediatric consultant nurse of that division, and the health education consultant of the State Department of Education to meet with him to discuss ways in which local PTA groups might work with local community agencies.

Priority to Screening

Because the vision problem had been so neglected and screening can be done by volunteers the committee decided to give it priority, as a part of the total school health program. It was decided first to ask only a few counties to participate on a demonstration basis. Nine were invited and all accepted. An all-day planning meeting was held on September 27, 1957; members of the original committee, school administrators, health department personnel, and PTA representatives from the nine counties attended. Mrs. Florence Cunningham, nurse consultant of the National Society for the Prevention of Blindness, met with the group.

Following the meeting a great deal of planning was done on state and local level in preparation for the program. Hilla Sheriff, M.D., state director of the maternal and child health division, was requested to give leadership. She invited a pediatrician, the chairman of the school health committee of the South Carolina Medical Association, the president of the state EENT Society who was also a member of the state school health committee, and an ophthalmologist to serve as an advisory committee on the state level. At the first meeting of this committee, held November 8, 1957, such topics as the following were discussed:

1. What screening method or methods are recommended for schools?
2. How often should screening be done?
3. What is the recommended procedure for children already wearing glasses?
4. What are the recommended criteria for referral?
5. What are the recommendations as to who should screen, rescreen and follow through?
6. What provisions can be made for children whose parents are unable to pay for examination or glasses if recommended?

Snellen Chart Used

The advisory committee agreed that screening with the Snellen chart combined with careful teacher observation was the preferred method. The recommended criteria for referral were: Children age five through eight should be referred for missing the 30-foot line; those age nine and over for missing the 20-foot line.

After this meeting one of the M.C.H. consultant nurses visited the health department in each of the participating nine counties to discuss equipment

and materials needed for institutes that were to be held, and the recommendations made by the state professional advisory committee to the vision screening program. The counties were also encouraged to have a local advisory committee, and the majority did. The county committees reviewed and accepted the recommendations of the state advisory committee. The director and the pediatric consultant nurse of the maternal and child health division were invited to meet with them.

Eight Institutes Held

The program was actually launched February 3–14, 1958, during which time eight institutes were conducted. Mrs. Cunningham instructed the volunteers in the screening procedure. Vision screening records and referral forms were discussed. The public health nurses in the nine counties attended the institutes and as a result they feel much more secure in expanding the program as schools request it.

The volunteers were very enthusiastic about the project and took the initiative in arranging schedules convenient to the school personnel. They screened all of the children who were entering school for the first time in September 1958. Screening of the preschool group was done at the local health departments. The nurses rescreened all of the children whom the volunteers found to have any visual difficulty; they made the necessary referrals, and followed each case until the recommendations of the specialists had been carried out.

Results Evaluated

In June 1958 and January 1959 each of the nine counties was asked to make an evaluation of the program. A total of 3,406 school-age children and 600 of the preschool group were screened; and of this number 1,300 or nine per cent were referred for eye examinations. Of these 85 per cent were correct referrals and they received needed eye care.

This program has been very satisfying and gratifying to all involved—volunteers, physicians, school personnel and public health nurses. Some of the volunteers said: "We all feel that this is one of the most worth-while programs in which we have ever participated." Others said: "This is a very important program. We wish to recommend more workshops in order to expand the services to all schools."

The director of the maternal and child health division received a letter from the secretary of the South Carolina Ophthalmological Association after its annual meeting in August, 1958, stating that the Association as a group and as individuals commended her on the vision screening program and offering to serve as an adviser. The local schools and health departments also received excellent cooperation. A principal of a school in Charleston said at a PTA meeting that he felt the vision screening program was the most important accomplishment of the school for the year.

Schools and Parents Alerted

Here is a brief excerpt from one of the many letters the pediatric consultant nurse received a short time after the program had begun:

"We have completed the vision screening in this school; 595 students were screened; 48 were referred to eye specialists. One was an 11th grade student with vision 20/100 in the right

eye and 20/70 in the left. Her mother didn't realize the girl couldn't see well and plans to get her in right away for the examination. The volunteers who had the vision screening course were a wonderful help and most cooperative in every way."

I think the project was especially gratifying to the nurses since the results of their work are so often intangible; whereas the results of this program can be measured both quantitatively and qualitatively. It also helped to promote good public relations. The parents are now much more interested in the total school health program and are real allies of the schools and health departments in meeting the needs of the children. It is hoped that as time permits the program can be expanded to cover the state.

DELTA GAMMA SCHOLARSHIP WINNERS ENTHUSIASTIC

The value of advanced training for teachers of the partially seeing was expressed in reports from the 1956–57 winners of Delta Gamma scholarships, published in *Anchora* for Spring, 1959. This fraternity project enabled 14 women to take graduate work at Syracuse University and other institutions offering special courses in the teaching of visually handicapped children.

One of the scholarship recipients, Mrs. Helen A. Cason of Omaha, is the only orthoptic technician in Nebraska, working closely with ophthalmologists in a field she describes as "full, rewarding, and challenging." The teachers of partially seeing children are equally enthusiastic about their work. Several of them are veteran teachers who shifted to special classes when the program was initiated in their schools. Martha E. Bartlett had taught 28 years in the schools of Elmira, New York when at her own request she was given a class of children with extreme sight problems. A school principal from Ecuador observed her work for several days, and will follow the American methods at home.

The trend away from the special class to integration of partially seeing children into the regular classroom is reflected in the reports of several women who are itinerant teachers. Elizabeth Yonge of Pensacola, Florida has been a teacher for 24 years, the last seven in the partially seeing field. As an itinerant teacher she visits children in both elementary and secondary schools. When she calls on the lower grades she gives the entire class a lesson in eye protection, which benefits both the handicapped and normal children. Miss Yonge says that the itinerant plan adopted in her county has been warmly approved by ophthalmologists.

LIGHTHOUSE EXTENDS SERVICES

The New York Lighthouse low vision lens service, established in 1954 to help legally blind persons who have some useful vision, has been enlarged to include people from other parts of the world who have marginal vision. During 1958, 664 patients were treated with special lenses which enable them to read and travel with ease.

The Ophthalmological Foundation, the research associate of the New York Association for the Blind, spent over $200,000 during 1958 in basic eye research related to the cure and prevention of blindness. Among the 28 projects sponsored by the Foundation were major studies in glaucoma and uveitis.

APHA Discussions of Eye Problems

SPECIAL emphasis on the visual problems of school children characterizes papers presented at the annual meeting of the American Public Health Association and related organizations held in St. Louis, Missouri on October 27–31, 1958. Summaries of the papers appear in *Public Health Reports* for March, 1959.

A survey of school services for partially seeing children in 98 major cities was made by Dr. Helen M. Wallace, University of Minnesota School of Public Health, and Dr. Helen M. Starr, Minneapolis Board of Education. They found that 674 such children were in regular classes, 3,534 in special day classes, 1,919 in special day schools, and 18 in special residential schools. They urged that in certain cases partially seeing children under five years of age be admitted to the schools, and that medical personnel participate in the admission and review of handicapped children. A yearly review of each child was essential, they felt.

A two-year study of visual screening made in Contra Costa County, California, was reported by Henrik L. Blum, M.D. and associates. They advocated a modified clinical technique for school vision testing. The increase of visual problems with the child's age was noteworthy; the age group 5, 6, 7 years showed 18 per cent with defects, increasing to 31 per cent of the age group 13, 14 and 15 years. Only one-seventh of those referred to physicians had uncorrectable defects. (This study will be discussed in a later issue of *Sight-Saving Review*.)

Visual defects are not involved in most cases of reading disability, Dr. George E. Park of the department of ophthalmology, Northwestern University, found after examining more than 700 intelligent children with dyslexia. Only 19 per cent needed glasses.

Mrs. Florence Cunningham, nurse consultant of the National Society for the Prevention of Blindness, declared that neglect of preschool children with eye defects was especially serious for those with amblyopia. She described successful screening projects among children as young as three years.

Barely 11 per cent of the estimated 78,000 partially seeing children in our public schools are receiving special help, said Dorothy Bryan of the Illinois Department of Public Instruction. She endorsed the principle of integrating these children into the regular classes, with services provided by a special teacher, an itinerant specialist, or by the regular teacher under the guidance of state consultants. This last method, necessary in some small or isolated communities, is used in Illinois and several other states.

St. Louis Bans Toy Guns

A revision in the city ordinance code of St. Louis, passed in the fall of 1958, forbids the sale to minors under 17 years of BB guns or any weapon which propels a metal pellet or sharp-pointed arrow. Children under 17 may not possess or discharge such weapons unless they are in a park or playground where archery or target practice is permitted, or if on a vacant lot, unless at least one adult is present.

Award to Dr. Blake

THE Helen Keller Award for outstanding service in the prevention of blindness was presented to Eugene M. Blake, M.D. of New Haven during the annual meeting of the Connecticut Chapter, National Society for the Prevention of Blindness. About 140 persons attended the dinner meeting, held at the Waverly Inn, Cheshire, on April 29.

The award, a bronze plaque with a bas-relief portrait of Miss Keller, was recently established in her honor by the Connecticut Chapter. A congratulatory note from Miss Keller to Dr. Blake, its first recipient, was read in her absence. Presentation was made by Ira V. Hiscock, Sc.D., president of the National Society, "in grateful recognition of Dr. Blake's distinguished and unique role in the prevention of blindness and the conservation of vision." Franklin M. Foote, M.D., executive director of the Society, paid a tribute to Dr. Blake's many contributions to research and teaching in ophthalmology.

Dr. Blake, for nearly half a century clinical professor of ophthalmology at Yale University Medical School, is a past president of the American Ophthalmological Society. He has been a director of the National Society since 1947, and is vice-president and medical director of the Connecticut Chapter, which he helped to found. His lifelong interest in the prevention of blindness was reflected in his brief acceptance speech, in which he urged the members to continue their "excellent labors" in the state.

Thomas Trowbridge, Jr., of New Britain, president of the Connecticut Chapter, reviewed the past year's work, emphasizing the programs for preschool vision testing and for glaucoma screening. More than 3,000 persons in the New Haven, Bridgeport and Stamford areas were tested during the year for glaucoma, Mr. Trowbridge said.

The principal address was made by Secretary of State Ella T. Grasso, who said she was proud of the service which women have given to programs for the prevention of blindness. "It is through such small groups of citizens working together that we are able to achieve great things in a community," she said.

Dr. Eugene M. Blake of New Haven, right, receives the first Helen Keller Award made to a Connecticut resident for outstanding contribution to sight conservation. The bronze plaque was presented by Dr. Ira V. Hiscock, chairman of Yale University's department of public health and National Society president, at the annual meeting of the Society's Connecticut Chapter held in Cheshire on April 29.

One Big Health Agency?

THE dimes march in January; you are asked to have a heart and give to the Heart Fund in February. Crippled Children make an Easter appeal and the American Cancer Society calls to you in April. Mental Hygiene week is in May and the Multiple Sclerosis key signs appear in June. And so it goes through the year—Muscular Dystrophy, Nephrosis, Arthritis, Cerebral Palsy and on to Christmas when the colorful seals of the Tuberculosis Association appear in street booths.

To most medical practitioners, there seems—at first—something wasteful about this confusing grab bag of appeals. It occurs to many that it would be more efficient to unite them into a single voluntary health organization and thus reduce the number of executive secretaries, directors, clerks, and other personnel whose salaries are a first lien on the funds collected. And in a strictly logical sense, this indeed would seem sound.

But the whole operation is emotional rather than logical—and must be seen in that frame. It may make good sense but it doesn't reflect much knowledge of human nature to ask the officials,employees,advisers and boards to surrender their autonomy for the common good. Then too, people want to give to a cause that means something to them emotionally. The parent of a cardiac child is more likely to give generously to the Heart Fund than to an omnibus organization which finances cardiac research as a minor activity. The widower of a woman who died of carcinoma is more likely to donate money to a Cancer Society than to a general health organization. And in a general health organization, there will be constant disagreement over the division of funds. The "one big health agency" idea may be logically sound and may sound logical. But there is something to be said for the apparently inefficient system of a separate organization for each major disease. It fits into the peculiarities of human nature.

From the *Journal of the Medical Society of New Jersey*, November 1958.

Serendipity

MANY valuable discoveries in medicine have been made quite by accident, said Algernon B. Reese, M.D., in accepting the 1958 Proctor Medal of the Association for Research in Ophthalmology. His delightful talk was published in the *American Journal of Ophthalmology*, Part II, November 1958.

Like the three princes of Serendip who were always discovering something more wonderful than what they had set out to find, the gifted researcher may start on a wrong premise and stumble on something whose significance he is able to recognize. Sir Alexander Fleming discovered penicillin when in search of something else, and the miracle of antibiotics began.

The layman who merely recognizes cause and effect makes his contribution to healing. Long before penicillin, common folk had used moldy cobwebs for festering wounds. The high priest of Egypt who cured the pharaoh of night blindness had never heard of

vitamin A, he merely advised a cat's diet of liver and fish liver oils because the cat sees well in the dark.

Serendipity works best with the prepared mind. Keen observation and intuition led Sir Norman Gregg to associate German measles with congenital cataract, and Harold G. Scheie to utilize unusual occurrences in his glaucoma surgery as clues to goniopuncture and scleral cauterization. Diamox was largely an empirical discovery.

Eyes in the Animal World

REMARKABLE photographs of animal eyes taken by Constance P. Warner appear in the *National Geographic Magazine* for April 1959. Mrs. Warner, widow of Dr. Carden F. Warner, an eye specialist, worked for 25 years in the field of eye care. When she began studying the eyes of animals she perfected methods of magnifying without a microscope which fully reveal the strange ocular devices of nature.

The strangest eyes are in the lower evolutionary orders—reptiles, fish, birds, insects—whose eyes have odd contraptions like diving goggles, windshield wipers and even bifocal lenses. Many creatures have an inner third eyelid which flicks across the eye to moisten and clean it; in birds these are lined with one-celled feathers and serve as feather dusters for the eyeball. For protection against glare the prairie dog has an amber-tinted lens, and the skate has slats like a venetian blind suspended from the upper border of the iris; the emperor penguin's round pupils shrink to a square in ice-dazzle. The gecko "interlocks the scalloped edges of its slit pupils to leave four tiny pinhole apertures."

Burrowing animals have contrivances to shield the eye against dirt; diving birds have a third lid, opaque or crystal clear, to absorb the shock of a power dive. Birds of prey and many swift-flying insects have large eyes to help them find their quarry; moles and burrowing snakes need only small ones. Mrs. Warner has found an amazing variety of pupil shapes: slit, oval, horseshoe, hourglass, keyhole and star among them. The horsefly has a wonderful green eye with 7,000 facets, each sending its picture to the brain. The upper facets project bright, coarse images and the lower ones fine detail, nature's bifocals.

RISKS IN CHEAP GLASSES

People who buy eyeglasses in certain cut-rate stores risk getting inferior or perhaps harmful products, according to an article in *Good Housekeeping* for April, 1959 based on a sampling of spectacles bought in several cities. The so-called "quickie" operators may not fill a prescription accurately, and give the customer glasses already ground to specifications most frequently called for. The lenses may be of inferior quality—cheap imports, or rejects from American factories. The optical center of the lens may be incorrectly placed, and the glasses carelessly fitted. Such "bargain" glasses can aggravate, instead of correct, a vision problem.

NOTES AND COMMENT

• Pan-American Congress

The sixth Pan-American Congress of Ophthalmology will be held in Caracas, Venezuela, from January 31 to February 7, 1960. The Venezuelan Ministry of Health is cooperating with the local congress committee in planning a full scientific and social program. Invitations to attend as honorary members have been sent to Sir Stewart Duke-Elder (England), E. Velter and L. Paufique (France), R. Thiel (Germany), Hans Goldmann (Switzerland), Horacio Ferrer (Cuba), Pereira Gómez (Brazil) and Alan C. Woods, Derrick Vail and Frederick C. Cordes of the United States.

Citizens of the United States and Canada must have passports with a Venezuelan visa and a certificate of smallpox vaccination. Hotel reservations should be made through travel agencies; the Tamanaco Hotel is one of those recommended.

New silent or sound films on ophthalmologic subjects will be accepted if they have not been shown elsewhere. Those desiring to show films should get in touch with Dr. Wendell L. Hughes, 131 Fulton Avenue, Hempstead, New York, or Dr. Louis J. Girard, Hermann Professional Building, Houston 25, Texas.

General inquiries about the congress should be addressed to Dr. Rodolfo Hernandez, Av. Bolet Peraza, quinta "Marruca", Santa Monica, Caracas, Venezuela.

• Asia-Pacific Academy

Ophthalmologists from the Americas are invited to attend a meeting of the Asia-Pacific Academy of Ophthalmology, to be held in Manila and Hong Kong in September 1960. The society was founded in Brussels in September 1958 by representatives of ophthalmologic societies from India, Ceylon, Thailand, Hong Kong, Japan, the Philippines, Taiwan, Australia and Hawaii. The purpose of the organization is to encourage closer personal and professional contacts among ophthalmologists practicing in Eastern Asia, the Central and Western Pacific, and Oceania.

The provisional officers elected in Brussels are: president, Dr. Geminiano de Ocampo, Philippines; president-elect, Dr. V. K. Chitnis, India; vice-president, Dr. Ida Mann, Australia; treasurer, Dr. Renald Ching, Hong Kong; and secretary-general, Dr. William John Holmes, Hawaii.

• Eye-Bank Expands

Constant development of research and service activities is reflected in the 1958 report of the Eye-Bank for Sight Restoration of New York, which for the last 14 years has acted as national headquarters for the use of donor eyes in corneal grafts. This work is carried on through 11 affiliated eye banks and 250 hospitals—a countrywide network for dispatching freshly enucleated eyes to waiting surgeons. The continued help of the airlines and the American Red Cross Motor Corps makes rapid distribution possible.

The medical director, R. Townley Paton, M.D., reports on the research program, which has been greatly strengthened by the completion of the electron microscope laboratory. Special projects have been carried out in

the fields of retinal detachment, the preservation of corneas and vitreous, and grafting techniques. In the corneal clinic, the first in the country, hundreds of patients continue to have their sight restored or improved. Because of the oversubscription of its teaching courses, the annual keratoplasty course will now be offered to qualified ophthalmologists twice a year.

In the short space of two years, the number of eyes donated directly to the Eye-Bank has increased from 445 to 789, and of eye donor pledges from 2,200 to 34,500.

• Hope for Trachoma Vaccine

Now that the virus of trachoma has been isolated it is hoped that a vaccine may be developed, L. H. Collier, M.D. said at a recent meeting of the International Organization Against Trachoma held in Brussels. Dr. Collier, of the Lister Institute of Preventive Medicine, was one of a team which isolated the trachoma virus in 1958, one of the great milestones in medicine.

Electron microscopy indicates that the strain isolated in Gambia, Africa and a Chinese strain reported in 1957 by T'ang and his colleagues, belong to the psittacosis - lymphogranuloma group, Dr. Collier said. The African virus has now been isolated from 25 persons, and in a series of experiments with Sir Stewart Duke-Elder and B. R. Jones, its etiological role in trachoma was proved in a human volunteer inoculated with the virus. Recently Dr. Collier inoculated a baboon and found it susceptible to infection with egg-cultured virus. This makes it possible to work with these animals in developing a vaccine against trachoma.

These momentous advances in the fight against trachoma have been carried on under the British Medical Research Council, which maintains a laboratory in the trachoma belt of Gambia and a unit at the Lister Institute.

• Virginia Expands Services

A new clinic for subnormal vision aids has been opened by the Virginia Commission for the Visually Handicapped. In its report for the year ending June 30, 1958 it was announced that the reading vision of 67 persons was substantially improved by the fitting of optical aids. This service, operated jointly with the Medical College of Virginia, is held weekly in the John B. Tabb Memorial Eye Clinic in Richmond, which has been in operation for 23 years. During the year 1,718 persons were examined in the Clinic.

The rehabilitation department of the Commission helped 29 persons to attain better than 20/200 vision, and placed them in jobs. The special education of partially seeing children, supervised by the sight saving department, continued in classes or through itinerant teachers in the rural areas. This well-established service included hundreds of home visits and conferences with school doctors and nurses.

• Eye Damage in Skin Diving

One of the many risks in skin diving involves the eyes, says Robert W. Keast, M.D. in an article in the *Journal of the American Medical Association* of March 28, 1959. The phenomenon known as "squeeze," the pressing of body tissues into air-filled spaces in the diving costume, is particularly damaging to the eyes. With goggles there is no way of putting air inside them when under pressure, and

Boston University
School of Education
Library

at any but the shallowest levels squeeze may cause protrusion of the eyeballs. There is a similar risk in a tightly fitting face mask unless the diver knows that he needs air from inside his nose to fill in the mask, and snorts to increase the amount of air around his face. Otherwise, water pressure can compress the mask sharply around the nose, face and eyes, causing eyeball squeeze.

• Workshop in Texas

"Eye Problems of School Children" was the subject of a workshop held in Austin, Texas from March 10 to 13, under the joint sponsorship of the Texas Ophthalmological Association and the National Society for the Prevention of Blindness, with the assistance of the State Department of Health.

Among the ophthalmologists who appeared as speakers were Harold Beasley, M.D., president of the Texas Ophthalmological Association, Otto Lippmann, M.D. of Austin, Samuel M. Diskan, M.D., ophthalmologist in the public schools of Atlantic City, and Thomas J. Vanzandt, M.D. of Houston. The National Society was represented by Franklin M. Foote, M.D., executive director, and Florence Cunningham, R.N., nurse consultant.

Also participating were Mrs. Robert Williamson, chairman, NSPB screening project of Dallas; Mrs. C. L. Kirkman, NSPB screening project chairman of Houston; Mrs. Burnetta Downing, R.N., executive director, California Chapter of the NSPB; and Mary Thompson, supervisor of health education, Prince George's County Board of Education, Maryland.

The workshop, which was attended by more than 200 people, covered methods of vision screening and follow-up, the role of voluntary agencies, parents and teachers, and various psychological and medical aspects of vision of the school child.

Mrs. Downing stressed an often overlooked aspect of vision screening when she declared: "A program is only as good as its follow-up." Other speakers emphasized that a simple way to evaluate a school vision testing program is to study what per cent are screened each year, what per cent fail the screening in each grade, and what per cent of those receive the necessary eye care. More attention to follow-through, it was felt, usually results in a better overall program than when all the attention is focussed on the completeness of the screening test.

Miss Lila Rutherford, a school nurse of Corsicana, Texas, who attended the sessions, put her impressions into verse:

CONFERENCE RESULT

For vision conservation
We've renewed determination;
It's likely we miss plenty
While seeing twenty-twenty,
And hampered by myopia
We'll never reach Utopia.

• Milwaukee Clinic

A screening center for examining the eyes of young children, established in Milwaukee in 1952, has developed into an important public service. The clinic is sponsored by the Women's Welfare Board in cooperation with the eye clinic of Marquette University Medical School. Dr. Herbert Haessler serves as its chief professional adviser, and two other ophthalmologists, Dr. James Bolger and Dr. Brian McLaughlin, each contribute one afternoon a week to examining children.

Experienced volunteers of the Women's Welfare Board act as clinic staff and follow-up workers.

Of the 349 children screened in the year ending August 1958, 90 were between six months and three years of age and 259 were between three and five. Nearly a third of these children had eye conditions requiring further attention: 76 had refractive errors, 16 muscle imbalance, and 16 other pathology. About 82 per cent of these 108 children with visual defects were given complete evaluations; 68 saw private ophthalmologists, and 21 went to hospital clinics.

As an extension of its program, the pre-school vision clinic maintains an eyemobile with an eye specialist in charge which visits welfare agencies, nursery schools and other groups requesting this service.

WINIFRED HATHAWAY AWARD

At the May 1959 meeting of the National Society's Board of Directors an annual Winifred Hathaway Award was established in recognition of Mrs. Hathaway's pioneer leadership in providing special education services for partially seeing children. The award will be made to a "teacher of the year in the field of the partially seeing." Each state and the District of Columbia will be asked to nominate a candidate through the commissioner of public instruction or education. The national awardee, selected from the state candidates, will receive $250 and a certificate.

The National Society's Committee on Education of Partially Seeing Children hopes that a valuable by-product of the award will be the focusing of attention on this particular field of education not only among educators but also among the medical, health and social service professions, parents and the general public. Their stimulated and informed interest can give support to administration at all levels to provide the needed additional educational services to partially seeing children.

Final selection of the awardee will be made by a committee headed by Dr. Ira V. Hiscock, chairman, department of public health, Yale University School of Medicine, and president of the National Society. The presentation will be made at the Society's annual conference to be held in Denver, Colorado, March 30–April 1, 1960. Teachers selected in their various states but not receiving the national award will be given certificates of recognition by the National Society.

It is hoped that each state will nominate its candidate by November 1, 1959.

NEW EDITION OF HATHAWAY TEXT

A fourth edition of *Education and Health of the Partially Seeing Child* by Winifred Hathaway is announced for publication in the fall. The outstanding text in its field, it is published for the National Society for the Prevention of Blindness by Columbia University Press. The price will be approximately $5.00. Advance orders may be sent to the Press at 2960 Broadway, New York.

The National Society's list of *Some Suggested Sources of Equipment and Teacher Aids for Partially Seeing Children* has been revised and is now available. Pub. No. 159. Price 10 cents.

SPECIAL TEACHERS WANTED

Positions as teachers of the partially seeing for the school year 1959–1960 are offered in Macomb County, Michigan. This county, adjacent to Detroit, has special education programs in 20 different school districts, with a professional staff of 135. Among the advantages available are opportunities for advanced education in the three nationally-accredited universities within a few miles, and the fact that Macomb County has well-trained consultants to assist the relatively inexperienced teacher. For full information write to: Dr. John S. Haitema, director of special education, Macomb County Board of Education, County Building, Mount Clemens, Michigan.

Examinations for licenses as regular or substitute teachers of the partially seeing in the New York City school system will be held in the early fall. Information may be obtained from Harold Fields, chairman, Committee on Licenses for Special Education, Board of Education of the City of New York, 110 Livingston Street, Brooklyn 1, N. Y.

DECEIVING THE EYE

"What you see does not necessarily correspond to what is 'out there'," Dr. Hadley Cantril of Princeton University remarked to a flustered visitor at the Perception Demonstration Center who had just seen marbles rolling uphill. In an article in *Think* for May the visitor, Lincoln Barnett, describes his rather harrowing visit to Dr. Cantril's laboratory, where nothing was what it seemed to be.

A series of rooms designed by the principles of hyperbolic geometry produced optical illusions of various sorts. What the eye saw as a three-dimensional room turned out to be a flat wall. With one eye patched so that depth perception was greatly reduced, Mr. Barnett, like all visitors to the laboratory, was deceived about the size of objects, his distance from them, and he even "saw" upside down, so that marbles appeared to roll up a chute.

The lesson taught to Princeton psychology students is that what we see is determined not by the eyes alone but by experience, memory and assumption. Since we are familiar with normal rooms, we "see" a two-dimensional wall, designed to give us delusive clues, as a normal three-dimensional room. Our assumptions distort our perceptions, Dr. Cantril explained, and added that this applied not only to our visual experiences, but to our personal and social perceptions.

ARMY EYE CLINIC

One of the largest eye-care centers in the world is part of Walter Reed Army Hospital in Washington, D. C. From President Eisenhower, senators and statesmen down to non-coms referred from bases all over the globe the patient load is more than 60,000 a year. An article in the *Optical Journal and Review of Optometry* of March 15, 1959 describes this busy center, housed in a wing of the hospital's main building.

Heading the staff of 13 ophthalmologists and five optometrists is Colonel Austin Lowrey, Jr., MC, who is chief of the Army's ophthalmology service and consultant in ophthalmology to the Surgeon General.

The Army eye clinic has pioneered

in many branches of research, including corneal transplants, ocular prosthetics and plastic surgery, and management of intraocular foreign bodies. While the ocular research unit is now disbanded, investigative work is still going on, and the fact that the most knotty and desperate cases are referred to the clinic means the accumulation of a great body of clinical experience. The Army ophthalmologists take their three-year residency at the clinic, where they can observe the 50 or 60 major surgery patients constantly under care.

ELLIOTT S. NICHOLS

Elliott S. Nichols of Bloomfield Hills, Michigan, a leader of the prevention of blindness movement in his state, died on April 7, 1959.

Because his daughter had cataract early in life Mr. Nichols fully realized the handicap of visual loss and was determined to organize the forces of prevention as effectively as possible. He was one of a small group who began in May 1951 to establish the Michigan Committee of the National Society. Working closely with Albert D. Ruedemann, M.D., chairman of the state professional advisory committee, he supported the organization of educational activities, membership solicitation, and vision screening projects for preschool children. He served for six years as secretary and for a shorter period as secretary-treasurer of the committee.

Those who were associated with Mr. Nichols in this program were impressed with his never-failing enthusiasm, his vision and clear understanding of the goals in saving sight. An alert and astute business man, he provided sound guidance and counsel; and he personally contributed generously to the program's fund. His many friends and co-workers in this cause feel his loss keenly.

FELIX J. UNDERWOOD, M.D.

Felix J. Underwood, M.D., of Jackson, Mississippi, eminent public health administrator and a good friend of the National Society, died on January 9 at the age of 77.

Dr. Underwood had been associated with the Mississippi State Board of Health since 1921 and was its executive officer and secretary from 1924 to June 1958. He had served as president of the American Public Health Association, as a member of the House of Delegates of the American Medical Association, and as vice-chairman of the American Board of Preventive Medicine. He held numerous other important administrative and advisory posts in his home state and in national organizations. For three years he was a member of the scientific board of the Rockefeller Foundation in New York City. Among many honors he received was the Lasker Award, first in 1945 for Mississippi's planned parenthood program, and again in 1953 for outstanding public health administration.

Dr. Underwood was a leader in organizing ophthalmic mass screening surveys of populations in Mississippi. Conducted in 1952–1954, in cooperation with Tulane University, they are believed to have been the first of this kind, and they yielded valuable information for prevention of blindness programs.

Since February 1952 Dr. Underwood had served as a member of the board of editors of *Sight-Saving Review.*

AROUND THE WORLD

BOLIVIA

Society Founded. The National Society for the Prevention of Blindness of Bolivia was founded in Sucre January 15, 1959. The charter members are Drs. Gustavo Vaca Guzman, Armando Solares Arroyo, Fernando Mercy L., Jaime Solares Zamora and Professor Aniceto Solares, who was elected president.

GREAT BRITAIN

Eye Health of School Children. In the 50 years since the establishment of the School Health Service tremendous changes have taken place both in the pattern of ocular disease and in the care given children's eyes. In *The Optician* (London) of February 6, 1959 the current report of the chief medical officer of the Ministry of Education is reviewed.

The first school ophthalmic clinic started in 1910; now there are 450 ophthalmic and 45 orthoptic clinics. Vision testing begins with the nursery school. In 1957 nearly half a million children were treated for defective vision and strabismus, and a quarter million were fitted with glasses. The total number of blind children was 1,269 and of partially seeing 1,798.

Due to the conquest of infectious diseases, congenital and hereditary defects and accidents are now the chief causes of blindness, and myopia and cataract of defective vision. The rate of blindness per 100,000 children between 5 and 16 years of age fell from 37 in 1925 to 21 in 1950. Then retrolental fibroplasia caused a rise in the rate. Correcting a statement of the Medical Research Council that the disease "virtually disappeared as dramatically as it appeared," the report pointed to 47 cases in 1956 and 19 in 1957.

TV Vindicated in Survey. A study of the effect of television on children has been made under the auspices of the Nuffield Foundation. According to comment in *The Optician* (London) of April 3, 1959, the extensive survey shows that no damage is done to young eyes if viewing conditions are satisfactory; that healthy children do not become television addicts and view excessively; and that television does not affect the health and emotions of the child adversely.

INDIA

POB in Bengal. The Association for the Prevention of Blindness, Bengal, is steadily increasing its invaluable services to the rural population of the state. In presenting the 1957–58 report, the president, Sri S. Banerjee, commended the policy of concentrating activities in the villages rather than in Calcutta, where medical services are available.

Soon after its organization in 1930, the Association organized mobile units to bring ophthalmic help and knowledge of hygiene to the isolated areas. During the 1957–58 period three traveling dispensaries treated 66,431 patients and gave eye surgery to 1,475. The staff lectured on eye care and prevention of blindness, and where possible examined children attending school. In listing causes of blindness the classification of the International Association for the Prevention of Blindness was used.

Of 175 blind persons listed during the year by the mobile units 158 had lost their sight from curable or preventable diseases, the report stated. The chief blinding diseases in this group were: mature cataract 53, phthisis bulbi 31, leukoma 25, glaucoma 18 and keratomalacia 11. "Lack of general education and especially of practical hygiene make the villagers easy victims of quacks," the report said. Four cases of blindness in this list had been caused by the ancient practice of couching the lens in cataract.

Legislation which the Association has long urged includes the prohibition of any treatment of the eyes by quacks or unauthorized practitioners; compulsory vaccination and re-vaccination, compulsory prophylaxis against ophthalmia neonatorum, fireworks control, and laws against the adulteration of certain foods.

ISRAEL

Blindness Survey. The first survey of blindness in Israel has been made for the purpose of guiding plans for welfare services for the visually handicapped. The report of the Ministry of Social Welfare states that this is admittedly not a blind census, since not all the blind in the country were traced. Listing of children was especially inadequate.

The United Nations definition of blindness was used: corrected visual acuity up to 10/200 in the better eye, or a field of vision of 20 degrees or less. The criterion for partial seeing set up for this survey was corrected vision of 6/60 (20/200) or less in the better eye. The totals traced among the Jewish part of the population were 1,466 blind and 263 partially seeing; among non-Jews 240 blind and 77 partially seeing. Actually, the Ministry estimates, there are probably from 4,000 to 4,500 totally blind persons in Israel. The population at the time of the survey was 1,590,519 Jews and 237,215 non-Jews.

These racial groups present a sharp contrast in country of origin: 95 per cent of the Jewish blind were born abroad, and 92 per cent of the non-Jewish blind were native-born. Of the Jewish immigrants, 59 per cent were born in Asia, mostly Iraq, Yemen and Aden; 26 per cent in Africa, and 15 per cent in Europe.

About half of both groups were blind by the age of 17; 10 per cent were born blind. No data are reported as to the causes of blindness.

PHILIPPINES

Secretary Urges Blindness Prevention. Speaking before the Lions Club of Manila, the Secretary of Health, Elpidio L. Valencia, M.D., urged the members to undertake a campaign to educate the public in the importance of the Philippine Eye Bank for Sight Restoration. Since 1951 the bank has helped restore the sight of more than 130 persons, but it is hampered by lack of donors. There have been criticisms that removing the eye of a dead person is an act of desecration, Dr. Valencia said, and such misconceptions must be overcome before the bank can function effectively.

Dr. Valencia also recommended the founding of a National Society for the Prevention of Blindness, modeled on the American organization. As he saw the problem of sight conservation, there was need to locate all persons with vision defects, to determine whether they were curable and in general to combat blindness "by

planned education in sight protection as part of an intelligent way of living."

The health secretary's address was reported in *MD* for September 1958.

UNION OF SOUTH AFRICA

Trachoma Fought on Wide Front. During the spring of this year the Bureau for the Prevention of Blindness has intensified its campaign against trachoma over a wide native area. An evaluation of the mass treatment project begun in 1955 is being made by two ophthalmic surgeons and a medical statistician, who are touring in the Bureau's mobile unit and visiting the control centers scattered over the areas where infection is widespread. Field trials have been made in the use of various drugs, and the South African group cooperates closely with the World Health Organization and research organizations in England in carrying out important experimental work in trachoma and preventive ophthalmology in general.

The Bureau is a branch of the South African National Council for the Blind, and acts not only to bring medical and surgical services to remote areas of the Union, but to spread knowledge of hygiene and eye care among the natives.

RULES FOR SUN GLASSES

A revision of Federal Trade Commission rules for the sun glass industry went into effect in May, 1959, superseding those of 1951. The code defines sun glasses as eye-protective, not eye-corrective, devices. Most of the provisions concern trade practices, but Rule I, titled "Deception (General)," is aimed at misleading claims as to the ocular effects of sun glasses. The industry must not make deceptive statements concerning:

"(a) the protection afforded users of the product from eye injury resulting from exposure to sun glare, strong light, or other similar conditions;

"(b) the efficacy of the product to improve, or to prevent material reduction of, vision on the part of users when worn under continuous or intermittent exposure to strong light."

Other rules forbid misleading claims as to the quality of sun glasses, or misrepresenting them as conforming to a standard or specification.

CORRECTION

A regrettable error was made in the abstract of Dr. Leonard Christensen's article, "Topical Anesthetics for Eye Injuries," which appeared in the Spring issue of *The Sight-Saving Review*. The abstract stated that anesthetic solutions are preferable to ointments for treatment. Actually both solutions and ointments, as Dr. Christensen was careful to emphasize in his article, are unsafe for prolonged treatment, and should be used only for purposes of examination.

Topical anesthetics are toxic since they inhibit normal physiologic functions and are capable of producing pathologic tissue change. As long as this inhibition is transient and reversible, their action may be used to facilitate adequate diagnosis and rational therapy. However, as with other poisons, when dosage exceeds the optimum level, undesirable tissue alterations occur which may impair vision permanently.

CURRENT ARTICLES

Review of Status of State Laws Requiring Use of a Prophylactic in the Eyes of Newborn Infants. Committee on Medicolegal Problems. *Journal of the American Medical Association*, April 18, 1959, p. 1950.

Claims by some physicians that penicillin and other antibiotics are as effective as silver nitrate in preventing ophthalmia neonatorum, and are less irritating, led the committee to review the statutory situation concerning the mandatory use of silver nitrate.

All the 48 states and the District of Columbia require the use of a prophylactic in the eyes of newborn children, but only 16 exclude the use of any but silver nitrate. The others do not stipulate the prophylactic or they allow antibiotics, usually under the control of the proper health agency.

There are three schools of thought on whether state laws and regulations should be changed to permit the use of antibiotics: one group against change at present; a second advocating the substitution of antibiotics for silver nitrate; and the third in favor of waiting for the discovery of a wide-spectrum antibiotic effective both against bacteria and the virus that causes inclusion blennorrhea.

The first group, choosing silver nitrate as the preferred agent, acts on the advice of special committees set up to study the problem. These committees were appointed by the American Medical Association (1948), the Association of State Maternal and Child Health and Crippled Children's Directors (1956) and the National Society for the Prevention of Blindness (1955). The second group includes ophthalmologists who have made comparative studies of penicillin ointment and silver nitrate, and believe the former superior. The third opinion was expressed in a 1952 editorial of the AMA *Journal*, which concluded that there did not seem to be much choice between the two methods, and that it would be premature to change state laws until the wide-spectrum antibiotic was found.

The medicolegal committee reports that there is not sufficient unanimity of medical opinion to warrant the use of antibiotics as a substitute or alternative to silver nitrate, and advises against amending laws at this time.

Oxygen Control Policies for Premature Infants in Georgia. D. Jaeger-Lee. *Journal of the Medical Association of Georgia*, Vol. 48, p. 22. Jan. 1959.

Sporadic cases of retrolental fibroplasia (RLF) in premature infants led to a joint survey, by the newborn eye care committee of the state Medical Association and the maternal and child health division of the Department of Public Health, of hospital policies and practices in oxygen control. Questionnaires were sent 198 hospitals in November 1957, and reports were returned by 161, representing 88 per cent of the bassinets in Georgia hospitals.

Evaluated by the standards set by the two cooperating agencies, the reports revealed that only 12 hospitals had adequate policies; 116 hospitals, with half the bassinets in the reporting group, were uncontrolled in oxygen administration; and the remaining 33

failed to meet all the requirements. In 26 hospitals of the last group there was no rule for giving oxygen only on specific written order of a physician, such order to be renewed every 24 hours. This is the first recommendation made by the cooperating agencies.

Other points in their suggested policy specify that oxygen should be administered in the lowest possible concentration (not exceeding 40 per cent unless the physician gives a written order); that oxygen therapy be discontinued at the earliest possible moment; and that the duration of this treatment be noted on the infant's chart. If premixed tanks containing 40 per cent oxygen and 60 per cent nitrogen are not used, there should be a limiting device on the incubator, to be checked at frequent intervals until the concentration is stabilized, and thereafter checked at least every eight hours. The concentration and checking times should be entered on the infant's chart.

Only six of the 12 adequately controlled hospitals used premixed tanks. The reports of the other 155 revealed confusion about a gauge limiting the concentration of oxygen, tending to mistake concentration for rate of flow, or positive or negative pressures. Thus the reports did not furnish information on the concentrations actually used. Fifteen hospitals, with a total of 396 bassinets, reported that they routinely give oxygen to all infants in the delivery room. It is a frequent practice to use 100 per cent oxygen for this "flushing out."

In connection with this survey the three most commonly used types of incubator were tested to determine the liter flow giving 40 per cent oxygen. It was found that the flow varied with the different types of incubator.

Each hospital was sent an evaluation of its oxygen policy, together with the list of recommendations by the medical society and department of public health for prevention of RLF.

Incidence and Effects of Retrolental Fibroplasia. B. Lowenfeld. *The New Outlook for the Blind*, Vol. 53, p. 15. Jan. 1959.

Retrolental fibroplasia (RLF) has caused a spectacular increase in the number of blind children in California, and also in the severity of their blindness. The author reports observations made in the California School for the Blind, of which he is superintendent, and data gathered from the school's field services for preschool children in the southern part of the state. There is no mandatory reporting of blindness in California, and the figures given represent only the children served by visiting teachers in the area roughly south of Fresno.

Of the 632 preschool children served, 418 (66 per cent) were blinded by RLF in the period since 1946. The peak birth years for RLF victims were 1951–1953, when 232 of 300 (77 per cent) blind children born in those years were blinded by RLF. Since 1955, when hospitals began controlling oxygen administration to premature babies, the RLF toll has decreased to one case in 1957, and none so far reported for 1958.

In the school for the blind at Berkeley 61 of 151 pupils, or 40 per cent, were blinded by RLF. The composition of the school has now changed completely. In 1952–1953, before RLF victims arrived at the school, six out of ten children had useful vision (light projection to 20/200 corrected vision

in the better eye). Now only two out of ten children have useful vision. A survey made by the State Department of Public Health for all of California shows that there is a far greater percentage of totally blind children among the RLF group than among those blinded from other causes.

The Problem of Unilateral Amblyopia. R. B. Wellesley Cole. *British Medical Journal*, Jan. 24, 1959, p. 202.

An examination of 10,000 men, women and children under the National Health Service showed that 527 (5.3 per cent) had unilateral amblyopia. This condition arises from a failure or a breakdown of binocular vision in early childhood. The affected eye is normal except for the inability to attain central fixation.

Amblyopia is preventable, but only if it is treated in early childhood. By school age, when most children now get their first medical eye examination, unilateral amblyopia is already well established. The worst cases occur by the end of the child's first year. The younger the child the shorter is the interval needed for a weak eye to become permanently blind if neglected.

In the present study the youngest patient with unilateral amblyopia was a child of four years, and the oldest was 85 years. Often the condition was unsuspected. Incidence was about evenly distributed between the sexes, and 57 per cent of the cases were in the left eye. Heredity is a strong factor, but the pattern is so irregular that more study by geneticists is greatly needed. It is also essential to establish whether amblyopia is a complication or a predisposing cause of strabismus. The routine and repeated examination of all children's eyes from infancy is essential. Mothers should be alerted to the importance of even fleeting displays of strabismus.

The author believes the best method of diagnosing amblyopia in children is comparison of the two eyes; if one is two Snellen chart lines behind the other the diagnosis is positive. The Snellen chart pictures, Worth's marble balls, or occlusion of one eye and observation of the child's movements are helpful in indicating a "lazy eye" in very young children.

Surgical Treatment of Esotropia. R. J. Kennedy and J. L. McCarthy. *American Journal of Ophthalmology*, Vol. 47, p. 508. April 1959.

During the ten years ending January 1, 1957 the authors gave surgical treatment to 315 consecutive cases of convergent strabismus. Ages of the patients ranged from four-and-a-half months to 59 years; 152 in the series were aged six years or more, which made them poor candidates for a functional cure.

Onset of esotropia was from birth to four years in 265 patients (84 per cent), and in about half the strabismus began in the first year of life. About a third of the patients had a positive family history, and a half had a negative history for strabismus.

Most of the 122 patients thought to have monocular esotropia had suppression amblyopia. In the 70 amblyopic children aged six years or less, 7 had no central fixation, 24 had a visual acuity of 6/60 or less, and 7 of 6/30. Sixteen of this group were too young to be tested for acuity. The amblyopic children were treated preoperatively or postoperatively or both, and in 19 cases there was improvement. The treatment was usually total

elastoplast occlusion around the clock. In seven untreated cases the amblyopia improved spontaneously with constant wearing of glasses.

After surgery and postoperative orthoptics the results were appraised (average follow-up 2.6 years) as successful in 10 per cent of the cases, in securing binocular use of the eyes. If all patients over 10 years of age are excluded, and also those children with an amblyopic eye at the time of the operation (130 cases in all) the functional cures are 26, or 20 per cent. Postoperative orthoptics seemed to help many of these children to develop fusion. Cosmetic improvement was welcomed by the patients even when a large residuum of esotropia was present.

A Visual Acuity Test for Infants under Six Months of Age. R. L. Fantz. Paper presented at the Midwestern Psychological Association Meeting in Chicago, May 8, 1959.

The question of when and how we begin to see and respond to visual patterns was studied in a series of infants aged from 2 to 21 weeks. Previous experiments with human and chimpanzee babies had revealed their tendency to look at patterned more than at unpatterned objects, showing natural visual preferences. The natural preference method was used in this study.

The infants, lying in an experimental chamber, were presented with six-inch squares in black and white stripes of three different widths. A card with subliminally fine stripes in gray was presented with the striped card. The stimuli were a foot above the infant. Responses were observed through a peephole, and recorded on timers.

A significant number of the babies showed higher fixation times for the 1/8-inch and the 1/16-inch stripes than for the 1/64-inch stripes. Preference for the 1/8-inch stripes was present at all ages tested; preference for 1/16-inch stripes was more consistent among older infants. The results suggest an increase in fine pattern discrimination with age.

Amaurosis Congenita (Leber). J. Schappert-Kimmijser, H. E. Henkes and J. van den Bosch. *AMA Archives of Ophthalmology*, Vol. 61, p. 211. Feb. 1959.

The little-known affection of amaurosis congenita (Leber) was found to be the cause of blindness in 113 of the 600 known blind children in the Netherlands. This incidence of 18 per cent is only slightly higher than that found in Sweden (Allström and Olson, 1957). In their investigation of the causes of blindness the authors found 227 cases of amaurosis congenita, which had been given a variety of diagnoses by Dutch ophthalmologists. In order to study the affection in its earlier stages, 56 children were examined in detail.

The obligatory symptoms are: highly impaired vision, a marked discrepancy between the fundus picture and retinal function, a recessive heredity, and absent or markedly reduced electroretinogram. In this group vision was zero in four cases, running up to 1/10 in the better eye in three cases. Nystagmus was found in 35 children, two showed marked photophobia, and cataracts were found in 15 eyes. In older persons cataracts and keratoglobus are more frequent. Fourteen of the children had major neurologic or psychiatric defects (five were epileptic).

Among children the fundus may appear almost normal. In this group 39 showed atypical pigmentation or de-

pigmentation, 35 showed attenuation of the retinal vessels, 39 displayed some optic atrophy, and in 16 there was a markedly altered macular region. Five appeared normal. During life this picture may change considerably.

The recessive autosomal character of the affection is shown in the authors' pedigree chart of 13 cases in a family of the island of Urk, where inbreeding has been extremely high. Of the 42 mentally sound children in the study, 22 were from families showing the disease.

The highly impaired electrical response of these children to the electroretinogram shows that the origin of the disease must be located within the retina. Whether the disease results from lack of development of the retina or from a deterioration of the retinal function is a question which only a prolonged study of the reported cases can answer.

Pediatric Ophthalmology: Summary of a Round Table. J. E. Miller. *Pediatrics*, Vol. 23, p. 791. April 1959.

Various external diseases of the eye in young children, especially in relation to infection and to lid and conjunctival lesions, are discussed. In many types of conjunctivitis cultures should be taken to determine therapy, but in 95 per cent of cases only zinc sulfate is necessary. In chemical burns, topical anesthetics should be used only for temporary relief, as they produce corneal damage with prolonged use.

The Snellen chart is the most effective device for testing the visual acuity of young children. Screening techniques pick up more myopic than hyperopic children. In patients with hyperopia, strabismus usually occurs on a refractive basis, and may be corrected merely by the use of glasses to correct the hyperopia. However, about half of strabismic children without an accommodative error need surgical correction, the author states, and this is most successful if done before the child is two years of age.

Eye Injuries in Children. J. H. Nelson. *AMA Journal of Diseases of Children*, Vol. 97, p. 219. Feb. 1959.

The prevention of ocular injury is much more profitable than the treatment. Because of the delicacy and peculiarity of the ocular tissues, an injury that might be insignificant elsewhere is a serious or disastrous one in the eye. Eye injuries are commoner in children than in the general population; children under nine account for over 20 per cent of all serious eye injuries. Accidents of various kinds cause about half the cases of blindness in one eye, and about one-fifth of binocular blindness in children.

Most serious injuries are caused by sharp objects, blows, falls and foreign bodies, but BB shot, fireworks, dynamite caps, sharp-edged metal or plastic toys and thermal and chemical burns account for many more.

The toxic chemicals likely to be involved in children's eye injuries are household ammonia, lime, lye and potassium hydroxide. Since all four enter the anterior chamber of the eye within seconds or a very few minutes, immediate copious flushing of the eye with water is the one most important measure. The child's head should be held under a faucet or a low-pressure stream from a garden hose for several minutes, keeping the lids forced open. As soon after this as possible tetracaine should be instilled, and further

irrigation with saline given. Alkali burns tend to be progressive, and evaluation and treatment by an ophthalmologist are usually necessary. But the immediate flushing of all toxic chemicals from the eye must come before medical help is sought.

In extensive thermal burns life-saving may be the first consideration. If an ophthalmologist is not on hand, the physician may use atropine and antibiotic ointment instillations and bandaging as an initial measure.

In all injuries from mechanical agents or foreign bodies which damage the lids and globe, the importance of tetanus antitoxin or toxoid should be remembered. Internal eye injuries may be difficult to recognize, and usually require special care; meanwhile visual acuity should be recorded for each eye, and a brief account of the accident should be written.

Radiation injuries from watching a welder at work, exposure to rays from a quartz-vapor sun lamp, or watching a solar eclipse sometimes occur in children. Since the symptoms are delayed for six to ten hours in the first two types of exposure, the cause of eye distress may not be traced promptly. Before every solar eclipse the potential hazard to the eyes should be widely publicized, and safe methods of watching it described.

Personal Injury Claims against Schools are Increasing. J. F. Nihan and D. Webster. *Safety Education*, Vol. 38, p. 10. Feb. 1959.

Campus accidents leading to claims for personal injuries have become a serious problem in our colleges and universities. In a recent typical year there were about 1,000 injuries to students, staff and campus visitors at the state-supported colleges of New York. If these had all led to suits settled at the average rate of nearly $13,000 per court award, the state would have paid out $13,000,000. As it is, during the last decade the state colleges have incurred 49 suits adding up to nearly two and one-half millions.

Court awards for personal injury claims have increased greatly in the last decade. In a recent case in Illinois the plaintiff was granted a judgment of $750,000. Moreover, the doctrine of state immunity from tort is no longer certain to protect public colleges and universities. At least nine states have waived school immunities in recent years, and this old doctrine is becoming obsolescent.

A comprehensive program of safety education and safety supervision is imperative on every campus.

Management of Congenital Cataracts in Childhood. G. S. Ellis and G. M. Haik. *Journal of the Louisiana State Medical Society*, Vol. 111, p. 56. Feb. 1959.

At least half of the children with congenital cataracts have other ocular anomalies which may complicate surgery, and at best the prognosis must be guarded. If visual acuity is 20/50 or better, or if the condition is unilateral, the author feels surgery is not indicated.

Surgery is indicated for children with complete bilateral cataracts at birth or shortly afterwards, or if there is severe involvement of both eyes. There is no fixed rule about the optimum age for operating; if done before the child is two the incidence of complications is greater. If the cataracts interfere with fixation the first eye should be operated upon at six

months of age to prevent nystagmus, and the second eye when the child is five, six or seven.

Various surgical procedures are evaluated. Discission is the most widely used, but may have to be repeated. In linear extraction one operation is usually sufficient and absorption is rapid. All types of surgery involve complications, including glaucoma.

About half of these patients have postoperative visual acuity of 20/100 or better; nine per cent have 20/200, and 17 per cent have no useful vision.

Complications and Treatment of the Hypermature Cataract. G. T. W. Cashell. *Transactions of the Ophthalmological Society of the United Kingdom*, 1958, p. 3.

Since the age of the population is increasing, we may expect an increase in the complications of hypermature cataract. Patients should be strongly advised to have mature cataracts removed. The various types of complication are as follows:

Intumescence of the hypermature lens. The cortex appears as a homogenous fluid with crystals in it. Intracapsular extraction is difficult because of the inability to grasp the capsule with forceps.

Lens-induced uveitis. A sudden acute attack of uveitis as an inflammatory response to the toxic Morgagnian fluid; there may also be a phacoanaphylactic reaction. In nine of 14 cases reported by other authors, the other eye had been subjected to extracapsular extraction of the lens; this may have sensitized the patient to lens protein.

Phacolytic glaucoma. The commonest complication of hypermaturity. The picture is one of acute glaucoma caused by a leak of liquefied cortex into the aqueous, or frank rupture of the capsule, usually the anterior. The rise of tension is due to iritis and blocking of the angle of the anterior chamber with lens debris and macrophages.

Dislocation of the lens. The hypermature lens sometimes forms a hard shrunken structure and the zonule may rupture, causing the lens to dislocate forward or backward. In either case secondary glaucoma may result.

In some cases vision may be spontaneously restored by absorption of the lens matter after posterior rupture of the capsule, or the dropping down of the nucleus, or a complete posterior dislocation of the hard shrunken lens.

Some Pathological Aspects of the Complications Associated with the Hypermature Lens. C. Cook. *Transactions of the Ophthalmological Society of the United Kingdom*, 1958, p. 9.

Cataractous lens changes consist essentially of a hydrolysis associated with a breaking down of some of the lens proteins into smaller molecules. An increase in osmotic pressure results, followed by liquefaction of lens fibers. As the degenerative changes progress, if the capsule remains permeable the lens loses water and is converted into a shrunken plaque. If the capsule becomes impermeable the shrunken nucleus floats in the fluid cortex. Or sometimes even the nucleus dissolves, leaving a milky fluid enclosed in a distended thickened capsule.

From a pathological point of view the complications associated with the hypermature cataract may be divided into two groups: the first leading to phacolytic glaucoma and the second to

lens-induced uveitis. In phacolytic glaucoma the pathological picture shows little or no inflammatory response, and the essential reaction is the invasion of the anterior segment of the eye by numerous large mononuclear phagocytes engorged with lens material. These cells obstruct the filtration angle, bringing on an acute congestive glaucoma. Similar cells are also found along the anterior surface of the iris, within the iris stroma, and on the corneal endothelial surface. Usually they infiltrate the anterior vitreous space, posterior chamber and the surface of the ciliary body.

Remarkably enough, the posterior segment of the eye is apparently normal, and in the early stages both the retina and the optic nerve are unaffected. The causative factor of phacolytic glaucoma is in the breakdown products of the lens cortex, which evoke a phagocytic response rather than a true inflammatory reaction from the immediately neighboring tissues. This may occur without discernible rupture of the lens capsule.

Gross swelling of the lens, which becomes structurally too large for the globe, may precipitate an acute attack of glaucoma by obstructing the filtration angle, involving the ciliary processes, or hampering aqueous flow by pupillary block.

The weakening or atrophy of the zonular fibers leads to dislocation of the lens. A posterior dislocation is often well tolerated, but glaucoma may be produced by an irritative vasomotor reaction on the part of the ciliary processes, and by other factors. Sinking of the nucleus to the bottom of the capsule may, like true dislocation, produce secondary closed-angle glaucoma.

Lens-induced uveitis may possibly be of two separate types: phacotoxic or phaco-anaphylactic. Both may be followed by secondary glaucoma. The phacotoxic uveitis is due to the toxic effect of the liquefied lens matter, evoking within the anterior uvea a cellular infiltration predominantly mononuclear in type. The anaphylactic reaction is a response of the anterior uvea to lens protein, which is a weak allergen. This reaction is an acute inflammatory infiltration mostly of neutrophil polymorphonuclear cells.

Treatment of the Hypermature Cataract. J. R. Hudson. *Transactions of the Ophthalmological Society of the United Kingdom*, 1958, p. 21.

Since intracapsular extraction became an established procedure it has not been necessary to wait for cataracts to become mature, and they should never be allowed to become hypermature.

Skin sensitivity reactions to lens proteins should be studied before surgery. If sensitivity is thought to have developed as indicated by the skin test, or by evidence of a severe postoperative uveitis in the first eye, intracapsular extraction is chosen for the second eye. Otherwise, extracapsular extraction may be considered, and in the case of the intumescent lens gives excellent results. Intracapsular extraction in these cases is difficult unless micropuncture or the erisophake supplements the forceps.

A second type of hypermature lens, the hard lens with a shriveled capsule, offers little difficulty. The dislocated lens is a problem for which many techniques are suggested. Loss of vitreous must be avoided if possible.

When glaucoma is associated with

an intumescent lens, every effort must be made before surgery to reduce the intraocular pressure, and a complete iridectomy should precede cataract extraction.

Cataract Extraction with the aid of Alpha-Chymo-Trypsin. D. Ainslee. *British Journal of Ophthalmology*, Vol. 43, p. 200. April 1959.

In 32 consecutive cases of lens extraction, 23 in patients over 60 years of age, no serious operative difficulty was encountered, and it seemed clear that the enzyme had greatly weakened the zonule. Striate keratitis occurred in 16 cases in which the erisophake was used, but did not appear to follow the use of capsule forceps. In all but one instance these corneal changes settled rapidly. Secondary glaucoma occurred postoperatively in one patient. There was no vitreous loss in any case.

Intracapsular Cataract Extraction Using Alpha-Chymo-Trypsin. J. E. H. Cogan, H. M. Symons and D. C. Gibbs. *British Journal of Ophthalmology*, Vol. 43, p. 193. April 1959.

Alpha-chymo-trypsin is an enzyme prepared from bovine pancreas which has a selective solvent action on the zonule supporting the lens. Dr. Joaquin Barraquer of Barcelona, its discoverer in 1957, found that this enzyme, when introduced into the anterior chamber after a corneal section, caused a complete lysis of the zonule in about three minutes, and made lens extraction much easier.

The authors report 122 consecutive cataract operations, using three different preparations of the enzyme. Chymotrase, the original Spanish product, freshly made up weekly, was used in the great majority of the cases. Most of the cataracts were of senile or presenile type; three-fourths of the patients were between 70 and 90 years of age. In one series of 72 cases the erisophake was used; in 50 others forceps were chosen. The authors found the operation vastly simplified by use of alpha-chymo-trypsin; in most cases the lens could be virtually lifted out.

It is the impression of the authors that no damage results to the eye structures from use of the enzyme, in senile and pre-senile cataracts. However, its use for juvenile cataracts appears to be fraught with hazards. In this series there were only two young patients. One, aged 16 years, had an alarming herniation of vitreous, and has not recovered useful vision in the operated eye. In the other, aged 20, no lysis of the zonule occurred, and an extracapsular operation had to be carried out. Observation of a series operated upon by Dr. Barraquer showed that in young patients an intraocular extraction was possible, but the contents of the eyeball were too traumatized to justify the risk.

Alpha-Chymo-Trypsin in Cataract Extraction. E. C. Zorab. *British Journal of Ophthalmology*, Vol. 43, p. 202. April 1959.

In 26 eyes of 23 patients whose ages ranged from one to 88 years, the author used Spanish and English preparations of A.C.T. In 23 eyes there were no operative difficulties, but in three the lens, swollen into spherical shape by digestion of the zonule fibers, bulged forward and was delivered with considerable trouble.

The enzyme did not appear to damage the ocular tissues, but may

have been responsible for deterioration of an early Fuchs' dystrophy which one patient had preoperatively, and for vitreous hemorrhage and large retinal detachment in another case.

The author believes that for the patient over 60 years of age the addition of A.C.T. is of little advantage, but is of greater value the lower the age. He found that in patients aged one year, 32 years and 50-odd years cataracts were delivered with equal ease.

The Incidence of the Primary Glaucomas. R. Smith. *Transactions of the Ophthalmological Society of the United Kingdom*, 1958. p. 245.

Cases of closed-angle glaucoma outnumbered those of the chronic simple type in a study of 608 patients in the glaucoma clinic of a London hospital. Group A of this series, with 506 cases, were patients referred to the clinic in the ordinary way, and probably included more chronic than acute cases. Group B, 102 in number, were referred from the out-patient clinics of the hospital for the purposes of this study, and included all cases of known or suspected primary glaucoma.

Of Group A, 368 cases of primary glaucoma were diagnosed, 209 (57 per cent) of the closed-angle type, 134 (36 per cent) chronic simple, and 25 (7 per cent) of unknown type. The 66 cases of primary glaucoma in Group B were distributed as 48 (73 per cent) closed-angle, 16 (24 per cent) chronic simple, and 2 (3 per cent) of unknown type. The difference between the groups is explained in part by the fact that Group B were new cases, including acute ones.

The sexes were about equal in chronic simple glaucoma, but females outnumbered males about three to one in closed-angle glaucoma. The peak age incidence in the closed-angle type was in the region of 55 to 59 years (Group A), while in the chronic simple type the peak was between 70 and 75 years.

In the discussion following this paper, several members of the Society remarked that they had also found a preponderance of closed-angle over chronic simple cases.

The Diagnostic Value of Flicker Perimetry in Chronic Simple Glaucoma. C. J. Campbell and M. C. Rittler. *Transactions of the American Academy of Ophthalmology and Otolaryngology*, Vol. 63, p. 89. Jan-Feb. 1959.

Early detection of chronic simple glaucoma may be aided by the use of flicker perimetry. The authors, of the Institute of Ophthalmology, Columbia University, describe the apparatus and techniques they used in this investigation. It was first necessary to establish the flicker fusion response in normal eyes, and to calculate a mean and standard deviation for each isopter.

A series of 92 normal eyes in subjects ranging in age from 10 to 70 was investigated. The critical fusion frequency was found for each point in the flicker field, and the normal flicker field was defined. The procedure was then used in testing 35 eyes with proved chronic simple glaucoma. The results of flicker perimetry were compared with those of conventional visual field tests.

Flicker perimetry was found to be far more sensitive than field tests in revealing early stages of chronic simple glaucoma, thus indicating its diagnostic value.

Are Aqueous Humor Dynamics Influenced by Aging? W. M. Spurgeon, B. Boles-Carenini and A. Cambiaggi. *American Journal of Ophthalmology*, Vol. 46, p. 845. Dec. 1948.

Increase with age of the percentage of normal eyes with intraocular pressures higher than 30 mm. of mercury, and also lower than 13 mm. was found by the authors in a study previously reported. The subjects were 345 persons with no history or sign of glaucoma, ranging from 14 to 92 years in age. Further statistical evaluation indicates that in general the average intraocular pressures, facilities of outflow and flow rates do not change significantly with increasing age. But the spread widens for all three, and more of the extreme values, high and low, are found among older people, though most of them show normal tonographic values.

If this sample is representative of the population in this area, then the percentage of eyes with intraocular pressure greater than 28 mm. ranges from at least 2.4 at age 20 years to at least 3.6 at age 80. Appraising several of the glaucoma surveys made in recent years, the authors conclude that the estimated incidence of glaucoma of about 2 per cent is probably low.

The results of this study show that high pressures may occur at any age, and that a by no means negligible number of persons under age 40 have elevated pressures and glaucoma. They therefore suggest that tonometry be part of all routine eye examinations, regardless of age.

The increase with age of very low intraocular pressures is a new and as yet unexplained fact in geriatrics.

This study at the College of Medicine, University of Cincinnati was aided in part by a grant from the National Society for the Prevention of Blindness.

Proliferative Retinopathy in Diabetes Mellitus. H. F. Root, S. Mirsky and J. Ditzel. *Journal of the American Medical Association*, Vol. 169, p. 903. Feb. 28, 1959.

Early detection and strict control of diabetes are necessary to prevent the proliferative type of retinopathy which is becoming an important cause of blindness. This disorder is characterized by the growth of new vessels and connective tissue in or in front of the retina. The authors believe that it usually develops from a simple type of retinopathy. A study of 847 consecutive cases of proliferative retinopathy in the Joslin Clinic, a diabetes detection center in Boston, showed that it was apt to occur in persons who had had diabetes of early onset for an average of 17 years, and whose insulin therapy and diet control had been inadequate. Diabetes occurring early in life is of a more severe type than that developing late.

The incidence of serious eye trouble is steadily increasing, since diabetics often survive for longer periods than formerly. Studies prior to 1935 showed an incidence of 8 per cent of the proliferative type among patients with diabetic retinopathy, while in the decade 1946–1956 the incidence increased to 30 per cent. In 1947 blindness in Massachusetts due to diabetes was less than 4 per cent, but in 1957, 18 per cent of the new persons on the blind register had the disease. Other states have shown similar changes.

In the last 206 consecutive cases in this study there was no case of blindness in patients under 20 years of age,

but 25 per cent of those over that age were blind. However, many other patients have survived diabetes with onset in childhood from 20 to 30 years with no retinopathy—provided their treatment had been adequate. Thus blindness as a complication of diabetes can and should be prevented.

Diabetes in a New England Town. H. L. C. Wilkerson, L. P. Krall and F. K. Butler. *Journal of the American Medical Association*, Vol. 169, p. 910. Feb. 28, 1959.

Surveys made in 1946, 1950 and 1953 showed diabetes as it exists in a typical community, the town of Oxford, Mass., and proved the predictive value of thorough medical examinations. Of the 525 people originally studied, 294 were classed as normal, 70 as diabetic, and 161 as suspect because their blood sugar levels were higher than normal. As far as possible, these groups were restudied in the two checkups.

Persons classified as suspects were eight times as likely as the normals to become diabetic. The diabetics had three times as many relatives with diabetes as the normals; there was a positive family history in 62 per cent of the diabetics. The chief abnormalities in the diabetic group were in the eyes, heart and great vessels. In 1953, 65 diabetics and 201 non-diabetics were given thorough ophthalmological examinations. Three blind persons were found in the 45–64 year age group of the diabetics, and there were no blind in the normal group. Retinal lesions occurred in 21 per cent of the diabetics as compared with 1.5 per cent in the control group, and the percentage of cataracts was respectively 28 and 9. By the age of 65 all diabetics had sclerosis of the retinal vessels, as did 91 per cent of the normal group, showing that this is associated with age. But even the younger and middle - aged diabetics frequently showed abnormalities.

Since the average diabetic sees his doctor far more often than the non-diabetic, the family physician has an opportunity to practice preventive medicine and health education.

Traumatic Hyphema. A. G. Kushner. *Survey of Ophthalmology*, Vol. 4, p. 2. Feb. 1959.

Hyphema, the accumulation of loose blood in the anterior chamber, is common in eye injuries. With simple treatment most of these primary hemorrhages absorb in one to seven days. However, hyphema is serious because of the frequent development of complications following a secondary hemorrhage, which is always more severe than the primary one. The chief complications are glaucoma, corneal blood staining and peripheral anterior synechiae. It is estimated that between 19 and 25 per cent of traumatic hyphemas have a final visual acuity of less than 6/12 (20/40).

The author reviews the literature, which shows considerable disagreement about therapy, except for the importance of determining whether the patient has a blood dyscrasia, and the supreme importance of bed rest. Statistically, activity increases the incidence of secondary hemorrhage tenfold.

In 100 selected cases treated at Wills Eye Hospital between 1949 and 1958, it is noteworthy that 82 were aged 15 years and less, and males outnumbered females four to one. With the exception of one patient aged 24,

all 16 cases developing complications were children. The six patients of this group who had secondary hemorrhage with glaucoma were boys aged 5 to 15.

All patients were given bed rest and bandaging of both eyes. Two cases of corneal blood staining were operated with good visual results; six with glaucoma or large hyphemas had surgery, with visual acuity on discharge of 6/12 or better. Patients without ocular hypertension were given sedatives and analgesics; if the intraocular pressure rose, miotics and Diamox were used. None of seven patients given miotics developed secondary hemorrhage.

Therapy of Senile Macular Degeneration. E. O. Bierman. *American Journal of Ophthalmology*, Vol. 47, p. 405. March 1959.

Intravenous injections of aqueous heparin were used in a series of 13 patients with macular degeneration, and the results compared with those in a control group of 10 patients given vitamins and other supportive therapy. There was little difference in the effects. Of those given heparin one patient showed great improvement, two some improvement, eight no appreciable change, and two became worse. In the control group three improved, five showed no change, and two became worse.

The author believes that supportive therapy with vitamins and nicotinic acid, and what is probably more important, assurance, are of value in these cases. The patient is told that he will not lose all useful vision, that the condition may improve, and that the disease progresses very slowly, barring accident (hemorrhage). Heparin is now used only in desperate cases, since it is expensive and troublesome.

In Vitro Observations on the Behavior of Conjunctival and Corneal Cells in Relation to Electrolytes. J.Y. Harper, Jr. and C. M. Pomerat. *American Journal of Ophthalmology*, Vol. 46, No. 5, Part 11, p. 269. Nov. 1958.

The purpose of this study was to check on the vulnerability of cells from human and rabbit eyes to so-called "normal" saline. Cells from human conjunctiva and rabbit cornea were tested for reaction to saline, Gey's balanced salt solution, which contains eight constituents, and two commercially prepared electrolyte solutions containing six constituents each.

Cultures of the cells were examined in perfusion chambers with phase contrast cine microscopy, and cell activities were followed during experiments. Only the saline showed a deleterious effect on any of the tissues. It was relatively harmless for human conjunctiva, and for rabbit corneal epithelium, but was definitely damaging to cells from the posterior surface of the cornea. The two commercial preparations tested compared favorably with Gey's balanced salt solution.

The authors believe that in the surgical care of delicate eye tissues the commercially available balanced physiologic solutions are safer than saline.

This study was aided by a grant from the National Society for the Prevention of Blindness.

Problems of Anisometropia. H.W. Alcorn. *Journal of Iowa State Medical Society*, Vol. 49, p. 88. Feb. 1959.

The author reviews the literature on anisometropia, unequal refractive power in the two eyes. In 1944 Copps

found 44 cases in 1,000 refractions, with differences from one to three or more diopters between the eyes. He concluded that anisometropia usually results in amblyopia in the eye with the greater refractive error, and that amblyopia is greater in the hyperopes than in the myopes. A thorough study was made in 1955 by Jampolsky and several collaborators, using 200 carefully screened subjects. They found that unequal corrected acuities were significantly more common in hyperopes than in myopes, and reached higher values, and that the average corrected acuity of the hyperopic eye is lower than that of the myopic.

Despite the difference in refractive errors or despite unequal retinal images, people with anisometropia often see better when they use both eyes rather than either eye alone. Some of them consider it fortunate to have one eye myopic and the other hyperopic, since they are able to defer the use of bifocals. Others are unaware of their condition.

However, most authors believe that full correction of anisometropia should be made in children under 12 years of age. The present author believes that contact lenses are likely to solve the problem of correction.

Medical Standards for Full Mobilization. C. B. Meador, N. A. Hilmar and C. S. Gersoni. *U. S. Armed Forces Medical Journal*, Vol. 9, p. 1605. Nov. 1958.

The authors, from the Walter Reed Army Institute of Research, report a study of medical criteria for military inductees: those at present in force, and lowered (retention) standards which would presumably be adopted if there was imperative need for full utilization of manpower. They conclude that 55 per cent of persons now found to be medically unacceptable for military service would meet the retention criteria as used by the Army.

Of nearly 5 million men given preinduction examinations from July 1950 to July 1957, 16 per cent were medically disqualified. Of this group 4.7 per cent failed the visual acuity tests and 2.8 per cent had other eye defects.

To determine how many of these rejectees could be useful in a national emergency the authors analyzed the records of 871 persons, and found 478 met what they call retention standards. Of this group of 871 rejectees, 80 had eye conditions, 50 of them simple vision defects and 30 with eye disease. The retention standard passes an individual if the better eye can be corrected to at least 20/40, provided that the defective vision is not due to active or progressive organic disease. Analysis indicated that 39 of the 50 persons disqualified for vision defects, mostly myopia, could be salvaged for certain categories of service.

Of the 30 persons in the sample who had eye disease 13 were found to meet retention criteria. Eight of them had anopthalmos, eight had severe strabismus, three had cataracts, and among the rest were one case each of dislocated lens, permanent nystagmus, reattached retina, chronic iridocyclitis, chronic chorioretinitis, and recurrent corneal ulcer. All would require assignment limitations.

NSPB CATALOGUE—Single copies of the National Society's Catalogue of Publications are free on request. (No. 32) Address 1790 Broadway, New York 19.

BOOKS AND PAMPHLETS

So You Have Glaucoma. Everett R. Veirs, M.D. Grune & Stratton, New York. 1958. 64 p. $2.75.

This book for the layman, especially the patient with glaucoma, is conversational and simple in style, but the subject is well covered. The author says that if he appears repetitious it is because he wishes to reemphasize vital points, but this reviewer thought the repetition a little distracting.

The anatomy and physiology are covered adequately, as well as the special tests and general management of the glaucomas.

It is sometimes questionable, however, whether the glaucoma patient should be instructed in *all* phases of the problem for fear of confusion and misinterpretation in his particular case. This is especially regrettable when he begins to make his own evaluation in terms of tension reports. The author states that a tension of 28 mm. Hg. is usually considered normal and that the upper limits of normal are "say between 27 and 30 mm. Hg." This is unfortunate in view of the fact that a scale reading of 3 with a 5.5 g. weight is now generally considered suspicious. According to the 1955 scale this is a tension of 24 mm. of mercury.

Except for this questionable statement the information is adequate and well presented. The book could well serve as a general introduction to glaucoma for any lay group. Its effect upon the glaucoma patient himself must be considered in each individual case.

Willis S. Knighton, M.D.

Preventive Medicine for the Doctor in his Community: An Epidemiologic Approach. Second Edition. Hugh Rodman Leavell, M.D., Dr. P. H., E. Gurney Clark, M.D., Dr. P. H., and Nineteen Contributors. McGraw-Hill Book Company, Inc., New York. 1958. 689 p. $10.00.

The new broad definition of epidemiology is stated by Dr. Clark in an early chapter as "a field of science which is concerned with the various factors and conditions which determine the occurrence and distribution of health, disease, defect, disability, and death among groups of individuals." This expresses the general approach of this book, which is written primarily for medical students planning to go into private practice. Only the last section, by Dr. Leavell, deals with public health in the sense of organized community action. The rest of the volume aims to familiarize the doctor with the points in the natural history of any health disorder at which preventive measures may effectively be supplied.

The discussion of eye problems is written by Lloyd Florio, M.D., Dr. P. H., who is professor of preventive medicine at the University of Colorado

School of Medicine and manager of health and hospitals for the city of Denver. He provides an excellent general survey of eye disorders and problems as they exist in this country today. In his discussion of retrolental fibroplasia he adds to the essential facts about the dangers of oxygen to the eyes of premature babies the comment that adequate prenatal care helps prevent prematurity—and the risk of RLF. He urges an ophthalmoscopic examination in children aged two or three years, followed by skiascopy, for the early detection and treatment of anisometropia and threatened amblyopia. This examination should be repeated at six to eight years of age, along with objective visual tests. Even children passing a battery of school vision tests should have a thorough examination by a competent specialist, Dr. Florio insists.

Eye Surgery. H. B. Stallard, M.D., F.R.C.S. Third Edition. The Williams and Wilkins Co., Baltimore. 1958. 899 p. $18.00.

The fact that a third edition of this work has become necessary only a dozen years after the first indicates its acceptance as a standard treatise on both sides of the Atlantic. The present volume includes recent advances in anesthesia and operative procedures, and much of the previous text has been rewritten. In the fields of corneal transplants, radiotherapy and traumatic surgery much new material has been added.

Mr. Stallard followed his work as curator of the Moorfields Eye Hospital and ophthalmic surgeon at St. Bartholomew's with experience as Army surgeon during the war. While he has omitted much material about war wounds from his long chapter on reconstructive surgery of the eyelids, it remains a comprehensive discussion of this subject, and the remarkable photographs of his results in difficult cases show his mastery in this field. In dealing with all types of surgery he covers every phase from instruments to nursing procedures, and while he describes his own methods of choice in great detail, he comments briefly on other procedures used by reputable surgeons.

The book has 671 illustrations, many of them drawings by the author. "I enjoy the work and believe it to be good training for surgical hands," Mr. Stallard explains. From the reader's standpoint they enhance the clarity which distinguishes the text.

The Preservation of Eyesight. Sir Arthur Salusbury MacNalty: with the advice of a consultative committee. The Williams & Wilkins Co., Baltimore. 1958. 108 pages. $3.00.

There is great need for public education in the field of eye care, and in general this book provides sound information about the prevention of blindness and the efficient use of sight. However, it is unfortunate that these good qualities are marred by certain statements that are not generally accepted among scientific circles in the United States. For example, in discussing the removal of foreign bodies from the eye, it is not in keeping with first-aid recommendations in this country for the author to recommend to the general reader the removal of such a speck with a camel's hair brush or the corner of a handkerchief. Generally speaking, the removal of such foreign body is recommended through washing out, and if it appears to be

imbedded in the cornea or conjunctiva, the person should be taken to a physician.

With regard to illumination, it seems unfortunate that the authors imply that good lighting will help preserve eyesight and prevent various visual defects. The case for good lighting from the point of view of comfort, ease and efficiency of seeing is so well founded that it seems unnecessary to refer also to the possible deterioration of vision as being produced by inadequate lighting, a theory which is not generally accepted.

The Year Book of Ophthalmology (1958-1959 Series). Derrick Vail, M.D., Editor. The Year Book Publishers, Inc., Chicago. 1959. 407 p. $7.50.

As always, Dr. Vail's selections from the literature make up an indispensable volume which offers much information in brief form.

There is great emphasis in this issue on glaucoma. Dr. Bernard Becker contributes a special article, "Chronic Simple Glaucoma: Recent Advances in Diagnosis and Medical Therapy," and there is a generous section of abstracts. Especially valuable are the reports of studies in Germany and Sweden, where much basic work on the mechanisms in glaucoma is being done.

Retrolental fibroplasia is not yet a closed chapter, and the editor includes as "most important" a study by Cyril E. Williams (London) linking RLF with mental defects. Of 211 children blinded by RLF, 58 (27 per cent) were imbeciles, compared with 54 (18 per cent) of 294 who were blind for other reasons.

The editor has included four papers on anterior chamber plastic lenses, three of them from Europe, believing that this operation deserves emphasis, and that despite complications, "the results to date are indeed encouraging."

Transactions of the American Ophthalmological Society, 1958. Vol. 56. University of Toronto Press, Toronto. 1959. 730 p. $18.00.

Papers and theses presented at the 94th annual meeting of the American Ophthalmological Society reflect the steady progress being made on many fronts. One notable paper is the evaluation by David O. Harrington, M.D. and Milton Flocks, M.D. of their multiple pattern method of visual field examination. It is based on reports in the literature, responses to a questionnaire, and the authors' own continuing work in testing and perfecting their method.

During the five years' use of their field screener many thousands of persons have been tested in industry, in the armed forces, in driver testing and in glaucoma detection surveys, as well as in clinics and private practice. The reports in the literature have in general been favorable, as were the responses to the authors' questionnaire. The great majority of users found that field defects detected by the screener were confirmed by the tangent screen in from 90 to 100 per cent of the cases. The problem of false positives, of which the authors are fully aware, ran from zero to 10 per cent in the experience of 81 users, while 28 reported false positives up to 25 per cent.

False negatives—failure to indicate early glaucoma—have worried the authors more than false positives. They have experimented with a series of patterns specifically designed to detect

the types of field defects most often encountered in glaucoma. While these finer patterns will reveal a larger percentage of early field defects, they make the screener more time-consuming, and will increase the number of false positives. However, they are recommended as a substitute for the standard series III in the present test.

On the whole the authors feel that the test accomplishes what it was intended to do—act as a rapid screening device, and a stimulus to more frequent perimetric examinations. They emphasize that it does not supplant standard methods of field study, which should always be used when glaucoma and other diseases involving loss of visual field are suspected.

The Art of Clinical Refraction. Theodore H. Whittington, M.D. Oxford University Press, London. 1958. 286 p. $7.00.

It is unusual to find a book on refraction with no mathematics and a minimum of optics. Though this one is based on lectures to postgraduates at the Royal Eye Hospital and students at King's College Hospital, it is not a textbook, but what Dr. Whittington calls the wider view of refraction as part of the art of clinical medicine. Its object is "to make the patient comfortable."

In his excellent discussions of children's eye troubles Dr. Whittington gives advice on the examination of small children, and emphasizes the importance of catching these patients young. The younger the child the more quickly can he overcome strabismus and threatened amblyopia ex anopsia by total occlusion of the good eye in uniocular squint. Spectacles may be given at 18 months. The author advises spectacles of shatterproof glass for all children, and adults in sports and dangerous occupations.

Dr. Whittington's long experience in dealing with patients of all ages, and his interest in them as individuals, give his book special value. The nonmedical reader can gain much from this simply-presented and interesting treatment of a subject that is too often "the dry bones of spectacle-work."

L'Ophtalmologie Francaise au XX^e Siecle. René Onfray. Masson & Cie., Paris, 1959. 238 p. 3,600 francs.

This history of the evolution of French ophthalmology since 1900 received the Prix Burgkly of the Academy of Medicine in 1957. It is a careful and detailed account of work done in France on each eye structure. Dr. Onfray participated in the early work done in France on binocular vision, and for years was secretary-general of the French Society of Ophthalmology. This is a good reference book for those wishing to know more of what France has contributed to this specialty. It is distinguished for its excellent typography.

Guide to Occupational and Other Visual Needs. Clark Holmes, Harry Joliffe, James Gregg, Ian S. Cameron and Robert Blyth. Vol. 1. 1958. 482 p. $15.00. (May be purchased from Clark Holmes, P. O. Box 5310, Metro Station, Los Angeles 55, California.)

Financed by 85 company members of the Association of Independent Optical Wholesalers, this guide will be of special interest to dispensers who are concerned about the desirability of supplying patients with glasses for a variety of tasks. The visual require-

ments recommended by the authors for 200 occupations and avocations are illustrated by photographs. Included are industrial and commercial tasks, as well as those of the photographer, cabinetmaker, switchboard operator, secretary, housewife, etc. Driving, sports and various hobbies are also considered.

Although the book makes sound recommendations about the need for safety lenses and frames that resist heat and impact in a wide variety of occupational categories and for home workshop use, unfortunately the publishers did not keep in mind their own recommendations in choosing the illustrations. There appear to be at least 58 photographs of workmen carrying out eye-hazardous jobs in which they are working without any eye protection. Many authorities would also question the frequency of the advice that tinted corrective lenses be prescribed for outdoor use. There is so much useful information in the book that it is hoped that defects of this sort will be corrected in future editions.

Personal and Community Health. C. E. Turner, Dr. P.H. C. V. Mosby Co., St. Louis. 1959. 446 p. $4.75.

All college students, particularly those preparing to be teachers, should have a course in health education. This excellent text has served for many years as a basic volume in its field, and the eleventh edition reflects the continued teaching experience of the writer and of many others in the field. Many sections of the book have been revised, including those dealing with eye problems and illumination. The book is authoritative, well illustrated, provides references and should be most useful to college students.

Acta, First Afro-Asian Congress of Ophthalmology. Ophthalmological Society of Egypt, Cairo. 1958. 734 p.

In March, 1958 the first Afro-Asian Congress of Ophthalmology was held in Cairo under the auspices of the Ophthalmological Society of Egypt. Delegates from the Middle East, India, Indonesia, the Philippines, Japan, Communist China, the USSR, and other countries attended the sessions. The papers presented appear in this volume, most of them in English. Trachoma, as the chief ophthalmic problem of this vast area, received the greatest attention.

Education Special: Ten Years of Progress with Exceptional Children, 1947-1957. Hunter College Chapter, International Council for Exceptional Children, New York, 1957. 88 p. $1.00.

The Hunter College chapter of the Council for Exceptional Children was organized in 1947, with Ida Barron, teacher of the visually handicapped, as its first president. Since Hunter has trained teachers of the exceptional child for 30 years, one of the main objectives of the chapter has been to offer leadership to graduate and undergraduate students in special education courses.

This anniversary number of *Education Special* has articles from distinguished leaders in work for the mentally and physically handicapped child, which reflect the advances of the last decade in education and rehabilitation. New approaches in the education of the partially seeing child are discussed by Helen Gibbons, M.A., consultant in education, National Society for the Prevention of Blindness. Miss Gib-

bons describes recent improvements in the teaching of low-vision children—the well-lighted resource room with its large-type books and typewriters and magnifying devices; and the itinerant teacher plan which carries the partially seeing child through regular classes successfully. She points out that only 8,400 such children are now receiving special help out of at least 78,000 visually handicapped children in our schools.

Michel et ses Bêtes. René and Suzanne Brandicourt. Éditions Bourrelier, Paris, 1958. 80 p. 520 francs.

This charming tale of Michel and his pets is the first large-type book for partially seeing children to be published in France. Teachers of special classes had long requested such a book, and the Brandicourts, the founder and the director of a special school, succeeded in producing a story with delightful text and illustrations.

American children who are learning French would welcome this lively book, for in addition to the usual barnyard animals Michel has adventures with a lizard, a cricket, a bevy of snails, and a most engaging animal, Cactus the porcupine. In short, this is a minor classic among picture-books, to be enjoyed by all children, including those with visual troubles.

FROM THE NSPB MAILBAG

Quoted from a welcome letter recently received at National Society headquarters are the following paragraphs:

"I wish to thank you very much for your very kind and helpful letter of March 19, 1959, in response to my inquiry about glaucoma. Also the pamphlet, which I have read over several times. Also, I forwarded your letter and the pamphlet to a friend of mine who also has this disease so that she might also benefit from it. In addition, I showed this to my Doctor so that he would know how your Society is working toward alerting people with this disease to the importance of cooperating with the doctor.

"My doctor seems to be very efficient and is giving me lots of attention and I am cooperating to the utmost and will continue to do so. He told me the last time I was in that when I first went to him the tension in my eyes measured 59 and when I last went in it was down to 21, which is normal and he was very pleased . . .

"As I have contributed from time to time to your Society, it was most gratifying for me to learn that anyone can obtain the help from you that I have. It is too bad that everyone who is told they have glaucoma cannot be furnished with one of your pamphlets so that they will fully understand the seriousness of this disease. My Mother's experience with glaucoma had alerted me to it so that I had read considerably about it through the past ten years and I also was aware of the seriousness of getting to the doctor the minute I, myself, had indications of this trouble. Most people have never heard of it until they are told they have it and in my case, even though I know I have a fine doctor, he did not tell me lots of things that I think a person should know. Maybe you could work with the doctors along this line so that your booklet could be given to each new patient found to have this disease."

NOW!

For the partially seeing . . .
the full pleasures of reading!

THE AO® PROJECTION MAGNIFIER

Finally! For many of the partially seeing a new zest in living. The wonderful world of reading open before them! With this unique reading aid, the AO Projection Magnifier, they can read letters, newspapers, magazines, even thick textbooks and novels.

Two table models are available, one enlarges original material 3 times, the other, 5 times. Both are self-contained and portable.

Operation is simplicity itself. After the instrument is switched on, reading material is placed on the bookrest and the optical head lowered to contact the printed page. *Without further adjustments,* the user reads from the built-in illuminated screen.

Everyone, including chidren, can use the AO Projection Magnifier. There are no new reading habits to learn. Workers with the blind have found the instrument especially valuable in sight-saving classes. Also, now, many partially blind children can attend regular classes and use standard textbooks.

Information at AO offices in major cities or write today for illustrated literature.

American Optical
COMPANY
INSTRUMENT DIVISION, BUFFALO 15, NEW YORK

Dept. 0228
Please send me complete information on the AO Projection Magnifier.

Name_____

Address_____

City_____ Zone____ State_____

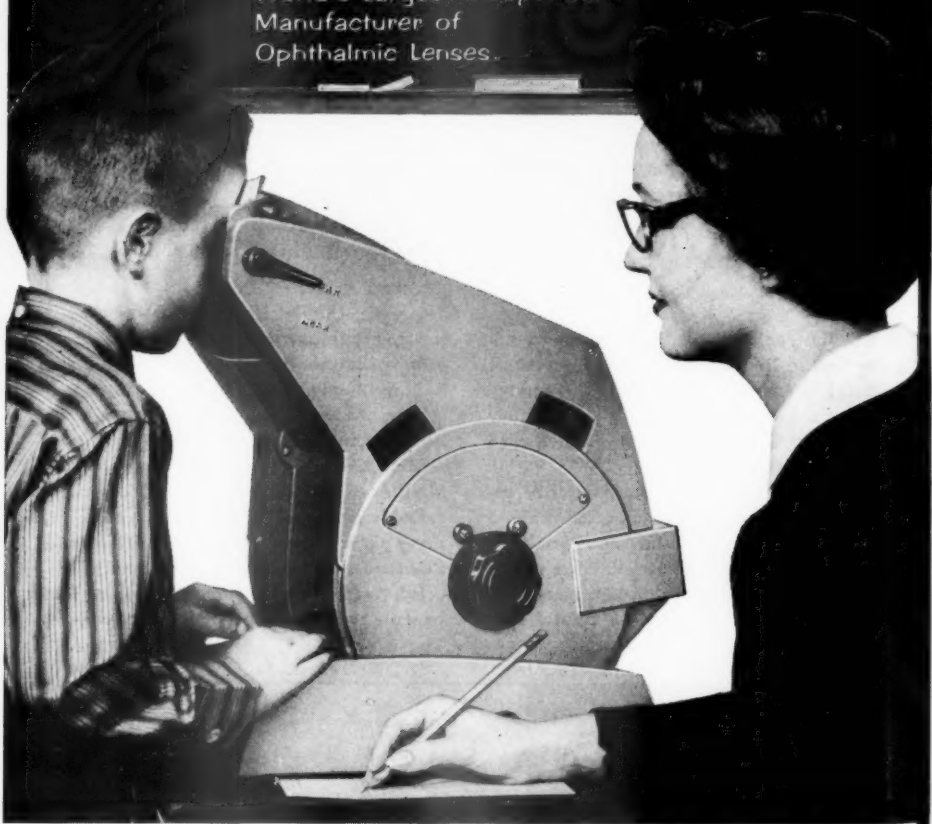
NEW, SIMPLER, FASTER

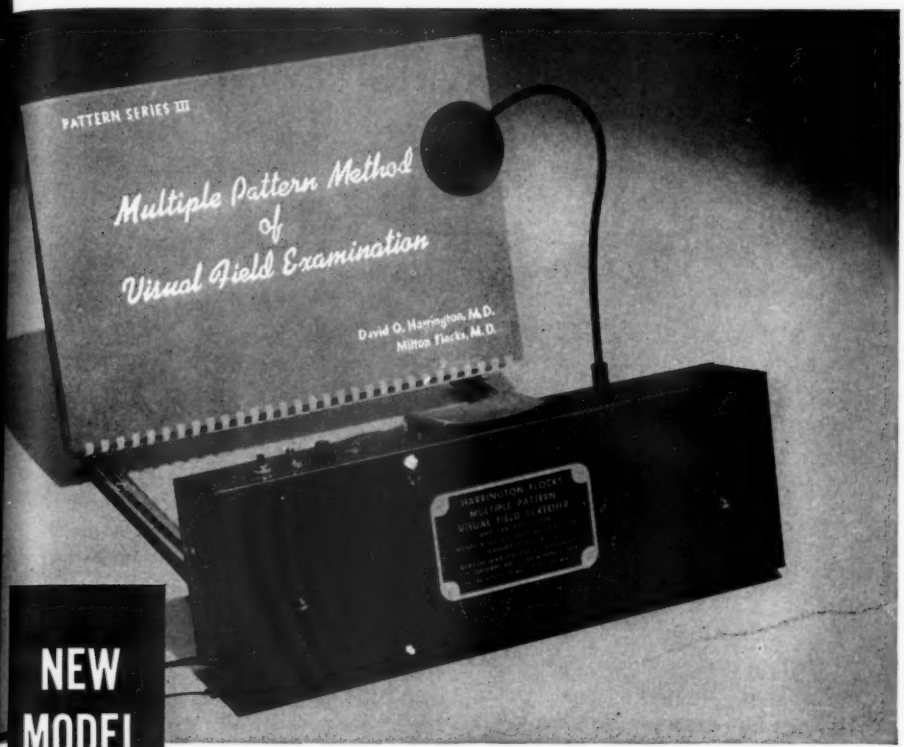
School VISION TESTER

Write today for BROCHURE giving essential information about this new instrument!

Titmus OPTICAL COMPANY, INC.
Petersburg, Virginia

World's Largest Independent Manufacturer of Ophthalmic Lenses.





NEW MODEL

Harrington-Flocks Field Screener only $149.50

Introduced by Jenkel-Davidson in 1956, the Harrington-Flocks Visual Field Screener has become standard equipment in leading ophthalmologists' offices throughout the country.

This Screener has proved to be remarkably accurate—and you can easily test a patient in three to five minutes! No special instructions are needed. Just press a button activating the black light flashes. What the patient sees on the various test cards indicates any loss in visual field, signaling the necessity of further tests for glaucoma and other diseases.

Order today—take advantage of this new low price.

Satisfaction guaranteed. Write or wire collect

Jenkel-Davidson
OPTICAL COMPANY

366 Post Street • San Francisco, California

6524

THE SIGHT-SAVING REVIEW

Volume XXIX Number 3

Fall, 1959

Table of Contents

PAGE

JOHN W. FERREE, M.D., M.P.H., NAMED NEW DIRECTOR OF NATIONAL SOCIETY 133

FRANKLIN M. FOOTE, M.D., BECOMES CONNECTICUT HEALTH COMMISSIONER 134

VALUE OF CONTACT LENSES
Donald A. Fonda, M.D. 135

ORGANIZED LABOR'S PRESCRIPTION FOR INDUSTRIAL VISION CONSERVATION
George T. Brown 138

THE SUBJECTIVE ELEMENT IN PERCEPTION
A. F. M. Brierley 141

GLAUCOMA SCREENING IN CONNECTICUT
Grace E. Mills 144

HEALTH DEPARTMENT FOLLOW-UP IN GLAUCOMA
A. William Menzin, M.D. 149

NO SUBSTITUTE FOR EARLY TREATMENT IN STRABISMUS AND AMBLYOPIA 151

VISUAL REQUIREMENTS FOR DRIVERS 152

THE PREVENTION OF BLINDNESS PROGRAM—ITS OBJECTIVES AND SCOPE
Virginia S. Boyce 154

SCHOOL SERVICES FOR PARTIALLY SEEING AND BLIND CHILDREN IN URBAN AREAS
Helen M. Wallace, M.D. 160

NOTES AND COMMENT 166

AROUND THE WORLD 174

CURRENT ARTICLES 176

BOOKS AND PAMPHLETS 186

ADVERTISEMENTS

AMERICAN OPTICAL COMPANY 129

EXCERPTA MEDICA 192

JENKEL-DAVIDSON OPTICAL COMPANY 131

TITMUS OPTICAL COMPANY, INC. 130

Copyright 1959
National Society for the Prevention of Blindness, Inc.
Title Registered United States Patent Office